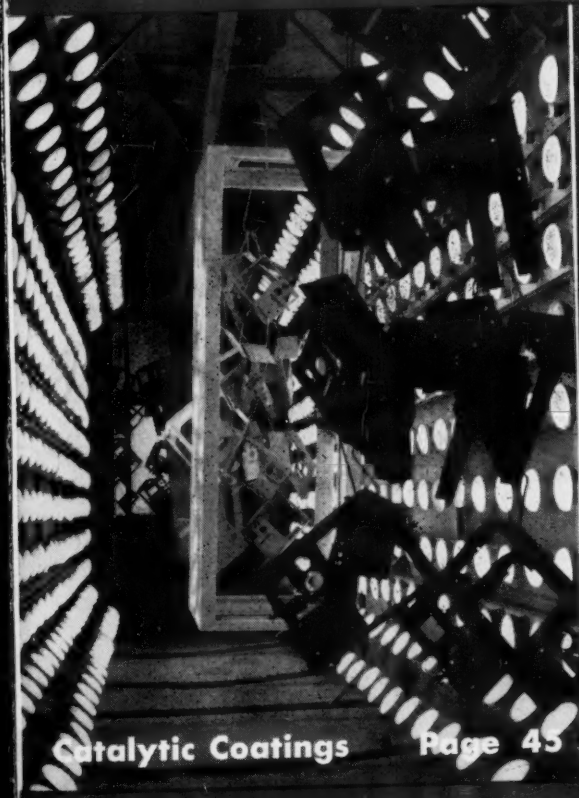
products finishing

OCTOBER
1958



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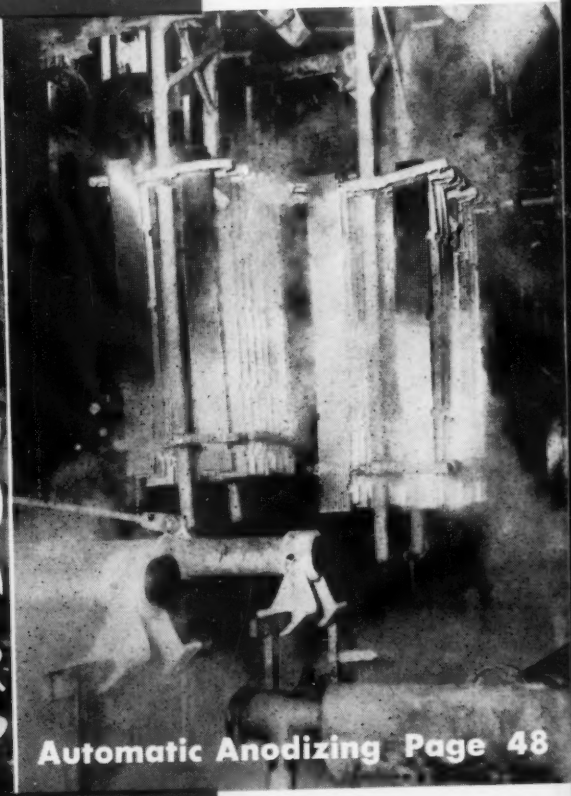

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Finishing Clinic	Page 72
New Developments	Page 84
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finishes on metal products

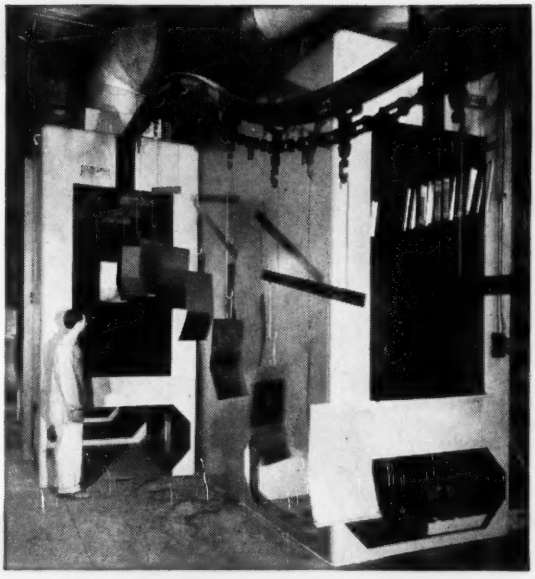
Cincinnati CLEANING AND FINISHING SYSTEM

installed by

BRUNING

produces

- Savings in Material Handling
- Improved Product Quality
- Better Working Conditions



Cincinnati Cleaning & Finishing Machinery is used in the production of a wide range of Bruning equipment for drafting and copying, earning the user's commendation for savings, improved product and working conditions.

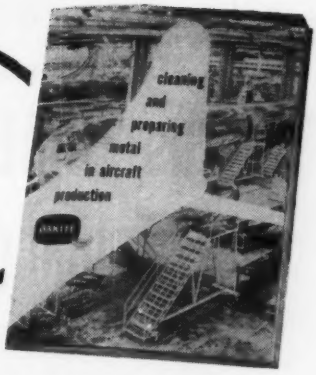
The monorail cleaning machine shown here processes frame parts and cabinets of copying machines prior to finishing; it is also used to clean machined parts between operations. The cleaning machine is part of a complete Cincinnati system which also includes: dry-off oven, down-draft spray booth, paint bake oven, monorail conveyor and air make-up unit.

Use the engineering and experimental facilities of Cincinnati Cleaning to get more economical cleaning and finishing . . . with better results . . . in your plant. For details, write:

Cincinnati Cleaning & Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio.

For more data circle 301 on Postpaid Card

Do you need better metal cleaners for these jobs?



All the tough jobs are covered by Oakite's booklet on *"Cleaning and preparing metal in aircraft production"*. Just check this list of contents for reminders of operations that give you trouble:

		SEE PAGES
☐	Cleaning aluminum (with or without etching)	2
☐	Preparing aluminum for welding	3
☐	ChromiCoating aluminum before painting	4
☐	Stripping paint from aluminum, steel	5, 9
☐	Barrel finishing aluminum, steel, copper	5, 9, 11
☐	Cleaning magnesium	6
☐	Cleaning steel; derusting and descaling	7
☐	Preventing rust	8
☐	One-operation preparation for painting	9
☐	CrysCoating steel before painting	10
☐	Cleaning copper and its alloys	11
☐	Controlling water in paint spray booths	12

OAKITE
SPECIALIZED INDUSTRIAL CLEANING
MATERIALS · METHODS · SERVICE
SCIENCE

In our 50th year.

FREE For your copy of this 16-page illustrated booklet, write Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

Technical Service Representatives in Principal Cities of U. S. and Canada

For more data circle 304 on Postpaid Card

Leading deburring company writes in:

To us, TUMBLEX* "T" is literally a "Touch of Gold"

This customer continues:

By switching to ALUNDUM TUMBLEX *"T" abrasive we eliminated three other types of finishing media and are getting better results. Now, on a metal part, that required six preliminary hand operations, barrel finishing with* TUMBLEX *"T" is all that's needed.*

Bonded ALUNDUM* TUMBLEX "T" abrasive is triangular, non-wedging . . . excellent for finishing intricate-shaped parts . . . provides long, even wear, fine finish, short time cycles and big savings.

Other Norton barrel finishing abrasives include ALUNDUM TUMBLEX "A" abrasive, for general usage; ALUNDUM TUMBLEX "S" abrasive spheres for hard-to-reach areas; and TUMBLEX "N" abrasive, natural stones for highest lustre on various parts.

Send sample parts to our Sample Processing Department. We'll barrel finish, return samples and report the methods and abrasives you need. Or come in and look things over, personally. NORTON COMPANY, General Offices, Worcester 6, Massachusetts. Plants and distributors around the world.

G-344

NORTON

ABRASIVES

Making better products... to make your products better

NORTON PRODUCTS
Abrasives • Grinding Wheels
Grinding Machines • Refractories

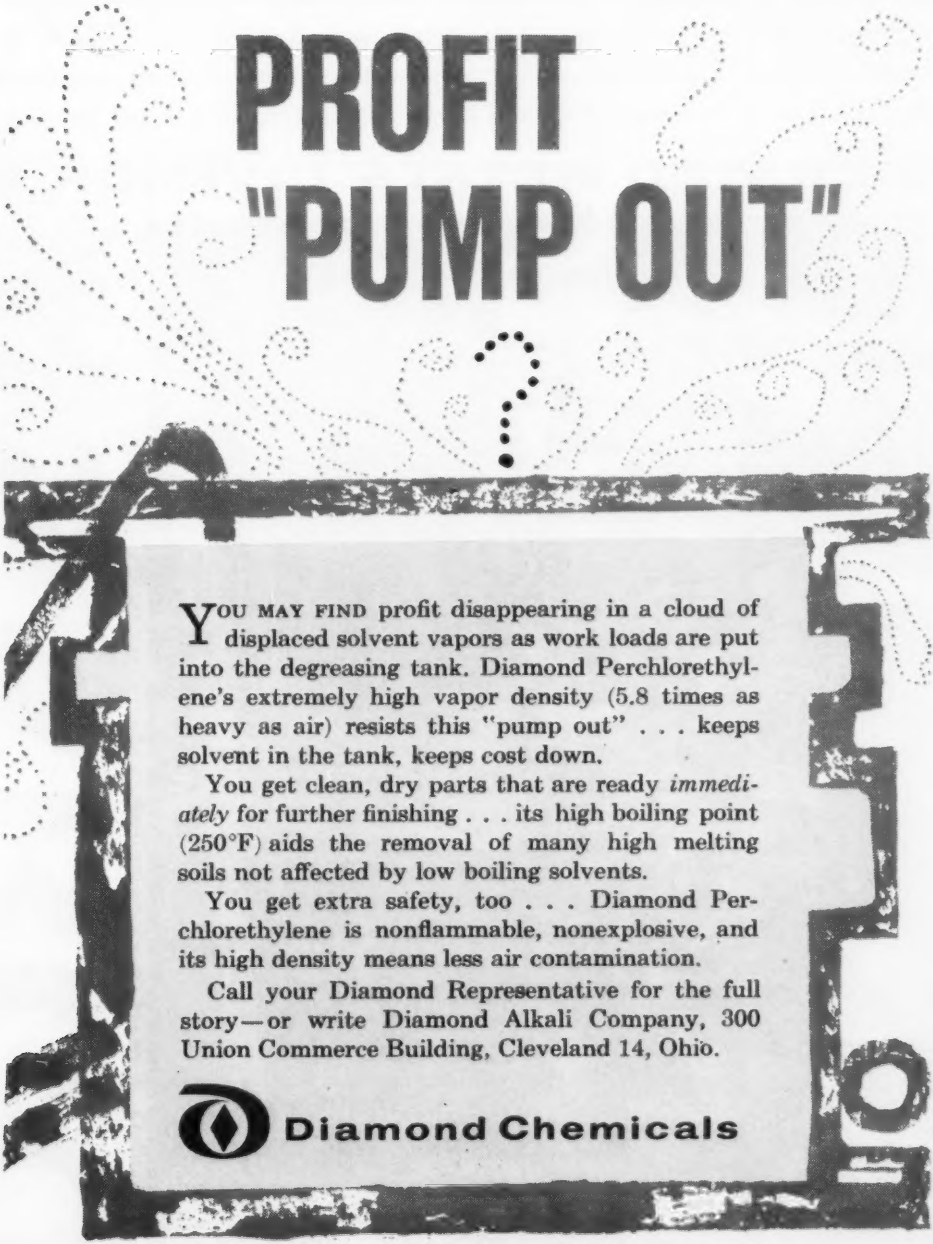
BEHR-MANNING DIVISION
Coated Abrasives • Sharpening Stones
Pressure-Sensitive Tapes

*Trade-Marks Reg. U. S. Pat. Off. and Foreign Countries

For more data circle 305 on Postpaid Card

Is your degreasing solvent suffering from

PROFIT "PUMP OUT"



YOU MAY FIND profit disappearing in a cloud of displaced solvent vapors as work loads are put into the degreasing tank. Diamond Perchlorethylene's extremely high vapor density (5.8 times as heavy as air) resists this "pump out" . . . keeps solvent in the tank, keeps cost down.

You get clean, dry parts that are ready *immediately* for further finishing . . . its high boiling point (250°F) aids the removal of many high melting soils not affected by low boiling solvents.

You get extra safety, too . . . Diamond Perchlorethylene is nonflammable, nonexplosive, and its high density means less air contamination.

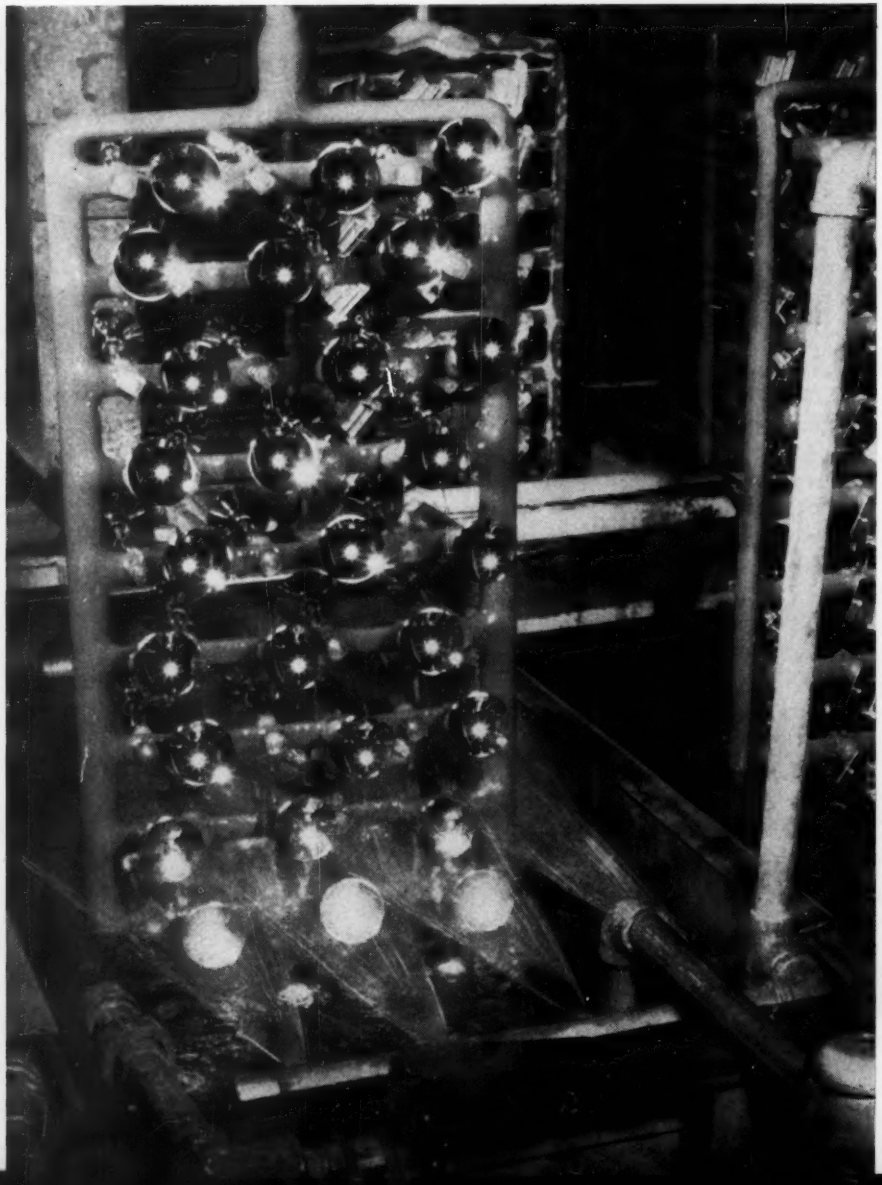
Call your Diamond Representative for the full story—or write Diamond Alkali Company, 300 Union Commerce Building, Cleveland 14, Ohio.

Diamond Chemicals

For more data circle 306 on Postpaid Card

Get the extras that cut costs and guarantee consistent results... Competitively tested materials, comprehensively and conscientiously serviced by a nationwide network of sales engineers and distributors. Federated's materials include new ASARCO-CAST COPPER anode, triple-life Conducta-Core lead anode, copper, zinc, tin, tin-lead, cadmium, brass and silver anodes. Nickel salts. Zimax, Nimax, Cadmax brighteners. New Conmax conversion coatings for zinc, nickel and cadmium plated parts. Federated Metals Division of American Smelting and Refining Company, 120 Broadway, New York 5, N. Y. In Canada: Federated Metals Canada, Ltd., Toronto and Montreal.

FEDERATED METALS DIVISION OF



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products finishing

Vol. 23 No. 1 October, 1958

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Member
BPA NBP

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For more data on advertisement on opposite page, circle 307 on Postpaid Card

PLASTISOL PERFECT...

K & B OVENS!

Kirk & Blum Oven installation in the plant of a leading manufacturer of Plastisol coatings. Oven measures 12′ x 12′ x 12′ and is used for both experimental and production operations.

Kirk & Blum Ovens are popular throughout the Plastisol industry where uniform temperatures are required. The oven illustrated is operated at temperature ranges up to 600° F. with temperature variations throughout the oven of less than 5° F.

The oven is used to determine experimentally curing and baking temperatures, as well as for batch production of very large items.

Whatever your oven needs consult Kirk & Blum. Write for new "Ovens for Industry" catalog. The Kirk & Blum Mfg. Co., 3116 Forrer St., Cincinnati 9, Ohio.

KIRK & BLUM

OVENS FOR INDUSTRY

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HAMMOND MODEL VRRO
Two-Spindle Variable Speed Lathe

STEP UP PRODUCTION—REDUCE FINISHING COSTS with Hammond DOUBLE SPINDLE LATHES

- No "down time" for one operator when the other changes wheel — each operator has his own motor, control and variable speed drive.
- Convenient Variable Speed dial is within arm's reach of the operator — no "climbing" around in back to change speeds.
- Wheel economy and better finish. As wheel wears each operator can increase speed — to maintain constant peripheral speed for uniform and better finish, maximum production and wheel life.
- Available in 3 sizes — two 5 HP, two 7½ HP or two 10 HP.

ALSO AVAILABLE IN WIDE SWING MODEL VRROW

Wide swing construction, with extended bearing housings and spindles, provides additional working space for large, bulky pieces.

Cost reduction is the need of the day — Write for catalog.

Hammond OF KALAMAZOO "Good Machinery Since '82"

Hammond Machinery Builders Inc.

1622 DOUGLAS AVE. — KALAMAZOO, MICHIGAN

See Us National Metal Exposition—Booth 1250—Oct. 27-31—Cleveland

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TEST THIS

NEW Rhodium Concentrate

an improvement by TECHNIC

Technic developed this superior Rhodium concentrate to meet today's electroplating specifications with —

✻LOWER STRESS
✻HIGHER PURITY
✻FINER GRAIN

Testing is easy because of high compatibility with existing Rhodium baths. Ask for complete data on characteristics and applications.

When you adopt Technic solutions or methods, our technical staff is yours until optimum performance is assured. Write or phone today.

TECHNIC, INC.

39 Snow Street
Providence, R. I.
JAckson 1-4200

Chicago Office

7001 North Clark St.

TECHNIC, INC
PRODUCTS OF RESEARCH

394-B

THE LARGEST ENTERPRISE OF ITS KIND IN THE WORLD

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products finishing

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★ ★ ★

Circulation over 21,500— largest in the finishing field

Sylvania's new catalog of vacuum metallizing coils lists 164 shapes and sizes. Most of these have become standards for efficiency in the applications for which they were designed.

Whether your interest is in finished coils or top-quality stranded wire, if you form your own coils, Sylvania can help you.

Here's how to find the one coil that's best for you

Sylvania can help analyze your coil needs if you supply us with the following information:

1. What type and weight material is being evaporated?
2. What material is being coated?
3. What is the length and diameter of your equipment?
4. What is the power supply to the coil and the distance between electrodes?

Address this information or your request for Sylvania's new catalog to:
Vacuum Metallizing Coils
Sylvania Electric Products Inc.
Towanda, Pennsylvania.

SYLVANIA

Sylvania Electric Products Inc.
Chemical & Metallurgical Div.
Towanda, Penna.

TUNGSTEN • MOLYBDENUM • CHEMICALS • PHOSPHORS • SEMICONDUCTORS

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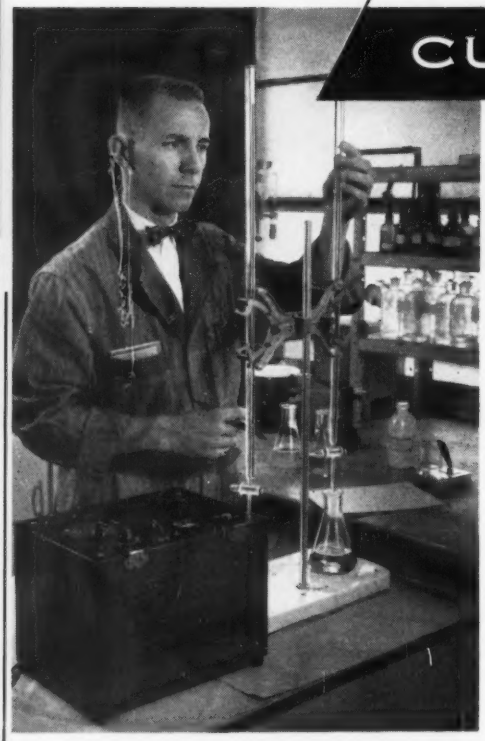
consult the..... *Roto-Finish*

CUSTOMER'S MAN

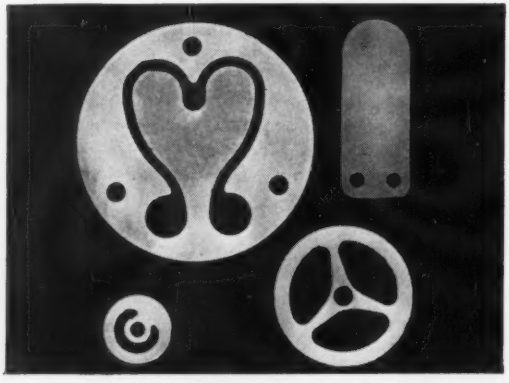


FOR FINISHING PLUS + RESEARCH and TECHNICAL ASSISTANCE

Faced with the problem of cutting down finishing costs with no sacrifice in product quality, more and more production and management men are turning to Roto-Finish for complete finishing *service*.

In the Roto-Finish Laboratory, technicians analyze your problem to determine the process which provides the desired finish at minimum cost. Often, it is necessary *to develop a new compound* to meet a specific need.

Test runs are then made in the Roto-Finish Processing Department under production conditions. If desired, your local Roto-Finish Customer's Man will run these tests in your own plant; so that you can check the results at first hand, results like this . . .



Roto-Finish CASE HISTORY

PART: Refrigeration compressor flapper valves.

MATERIAL: Swedish steel.

OPERATIONS PERFORMED: Deburr. Generate full radii on all edges. Remove stress risers.

RESULT: Fatigue resistance increased 500%.

ROTO FINISH®

Roto-Finish **COMPANY**

3704 Milham Road, Kalamazoo, Michigan

Phone: FIreside 3-5578

FOREIGN REPRESENTATIVES: ARGENTINA—Taller—Buenos Aires ● AUSTRALIA—A. Flavell Ltd.—Cheltenham ● BRAZIL—Commercial E. Industrial de Fornos Werco, Ltd.—Rio de Janeiro ● CANADA—Canadian Hanson & Van Winkle Co., Ltd. —Toronto ● ENGLAND—Roto-Finish Ltd. — Hemel Hempstead ● FRANCE—Societe Roto-Finish—Paris ● GERMANY, AUSTRIA, NORWAY, SWEDEN, SWITZERLAND—Metallgesellschaft A. G.—Frankfurt, a. M.—Germany ● HOLLAND, BELGIUM, LUXEMBURG—N. V. Roto Finish Maatschappij—Delft, Holland ● ITALY—Societa Roto-Finish a R. L.—Milan ● SPAIN—Instituto Electroquimico, S. A.—Barcelona

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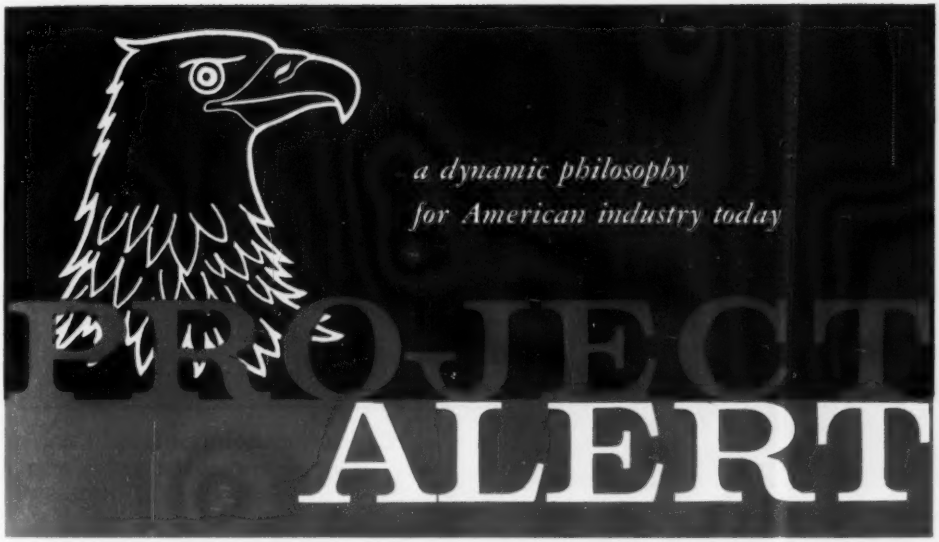

The purpose of this project is to establish a creative attitude of *dynamic alertness* on the part of all personnel in American industry.

Dynamic alertness is alertness on the move . . . is a positive, constructive way of thinking . . . a spirited new attack on your problems. It is swinging into action to get things done today . . . to insure a brighter, more prosperous future.

Three key words express the attitude of *dynamic alertness* . . .

1. **Observation:** This means inspiring your people to look at your problems with curiosity and creative imagination. It is taking a walk through your plant and looking at things as though you are looking at them for the first time. It is cutting through the fog of complacency and seeing things with new eyes. It is looking for new ways to stop leaks and losses; searching for new ways to speed production and efficiency.

2. **Concentration:** This means the intense application of the mind power of everyone to specific problems. It is the starting of new creative fires in your organization. It is having key people ask themselves key questions: How can I do my job better? How can I speed the flow of work? How can I cut down on errors? It is applying individual and group thinking to a list of things to be done and sticking with them until they are finished. It is preparing today to solve the problems of tomorrow.

3. **Devotion:** This represents a new vital spirit of rededication to your company, to your customers, to your industry, to America. It is a return to the creative ingenuity that made this nation great . . . finding a way or making one. It is having the power and purpose to go forward, to believe in the future to move ahead to better things.

We at Udylite believe in Project Alert. All of us, to a man are pledged to a policy of dynamic alertness in every facet of our jobs . . . in our contacts with fellow workers . . . in the handling of equipment . . . on the production line . . . in our contacts with suppliers and customers.

C. H. Reeme, *president*
The Udylite Corporation

the udylite corporation
Detroit 11, Michigan
World's Largest Plating Supplier

Make Project Alert work for you

Apply this dynamic philosophy to your firm. New, fresh creative imagination, newer, better production methods, newer more reliable equipment applied to the job now will pay off in a brighter, more prosperous tomorrow. Write for a free copy of the Project Alert folder and a free Project Alert lapel button. There's no obligation, of course.

PROJECT ALERT

For more data circle 313 on Postpaid Card

EGYPTIAN "COMPOSITE BAKE"* METAL PRIMERS can double your oven capacity too!

*"Composite Bake" . . . the simultaneous baking of the Egyptian System of Metal Primers and Top Coat in one pass thru the oven.

Recently one of America's largest Manufacturers of Air Conditioning Equipment† found himself wrestling with the finishing room bug-a-boo that eventually plagues every volume product manufacturer . . . overtaxed oven facilities – resulting in non-productive finishing room man-hours.

At the suggestion of his Egyptian Finishes Specialist he momentarily laid aside the obvious solution . . . additional baking units – and made a trial run, switching to Egyptian "Composite Bake" Metal Primers.

Here's how the tally sheet read: (1)-Oven capacity doubled. (2)– Non-productive man-hours practically eliminated. (3)– No additional baking equipment required.

In addition to these production advantages, Egyptian "Composite Bake" Metal Primers brought these highly desirable finishing characteristics:

†*Name upon request.*

- **EXCELLENT ADHESION to practically any metal surface.**
- **WILL TAKE MOST ANY TOP COAT—Lacquer or Synthetic Enamel.**
- **SMOOTH FILM and excellent "Enamel-Holdout"**
- **GOOD RUST RESISTANCE—Corrosion Inhibiting Pigments.**
- **SUITABLE FOR EXTERIOR EXPOSURES.**

Listening to the complete Egyptian "Composite Bake" Story could point out the way to cut costs in your finishing room too. Invite an Egyptian Industrial Finishes Specialist to call on you TODAY, or write for detailed information. No obligation of course.

EGYPTIAN *Industrial Finishes*

The EGYPTIAN LACQUER MANUFACTURING COMPANY

BOX 444, NEWARK 1, NEW JERSEY

EXECUTIVE OFFICES, ROCKEFELLER CENTER, N. Y. • Plants: South Kearny, N. J.—Lafayette, Ind.

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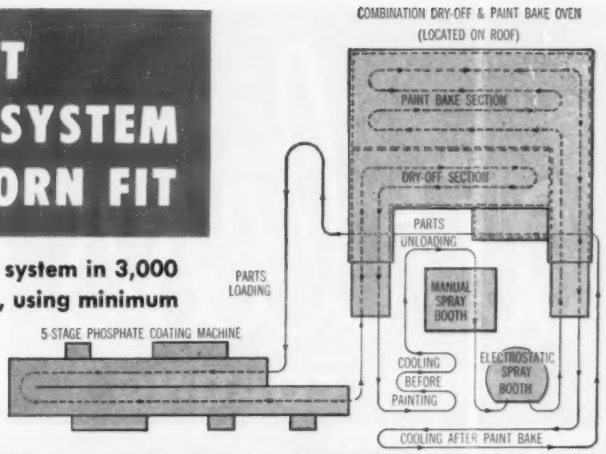
BIG OUTPUT FINISHING SYSTEM with a SHOEHORN FIT

. . . Ransohoff complete system in 3,000 sq. ft. triples production, using minimum paint, rework zero



Single unit heats combination oven, with separate dry-off and paint bake sections, on roof. Low fuel cost despite near-arctic winters.

Loading metal chairs on conveyor to 5-stage phosphate-coating machine. Sections are built back to back to conserve space.

The challenge at Krueger Metal Products, Green Bay, Wisconsin, would have baffled any but the top brains in the business. The situation: A one-floor plant with ceiling too low for overhead cool-off. Only 3,000 sq. ft. of floor area, studded with posts, requiring oven on roof. Roof not strong enough to support oven. Outside temperature of 10° for several months with heavy snow-load.

True to their tradition since 1916, the Ransohoff team came up with a complete, amazingly efficient system sandwiched into 3,000 sq. ft. including loading, unloading, and two cooling areas. And is their system performing? See what Mr. C. E. Saunders, Krueger's General Superintendent, has to say:

"Our new Ransohoff finishing system has tripled our production, limited only by the ability of our operators to hang and take chairs off. Whereas we formerly had difficulty in getting an even finish without considerable rework, our touch-up is now virtually zero. Our finish is evenly applied using a minimum of paint. Temperature recording charts show a variation of only ± 2° in our oven. Even on zero degree days, the roof oven heats up quickly to required temperature, while the entire system uses minimum fuel".

Write **RANSOHOFF, INC., 610 N. Fifth St., Hamilton, Ohio,** *for an answer to your problem. Send parts for test-processing, if you wish. No obligation.*

Ransohoff *The oldest name... the newest ideas*

Designers and Builders of Equipment for the Surface Treatment of Metals

• Washing • Rinsing • Burnishing • Rustproofing • Sawdust Polishing and Drying • De-Scaling • De-Burring • Drying • Pickling • Complete Finishing Systems • Foundry Wet Cleaning Mills • Ultrasonic Cleaning

For more data circle 315 on Postpaid Card

airless* SPRAY COATING

*Spray Painting Without Air

Spray Painting With Air | Airless

This new spray painting process (without air) will minimize your over-spray problems, reduce health and fire hazards, cut maintenance and clean-up costs, save paint, time and labor as well as reduce your auxiliary painting equipment requirements.

Over and above these advantages . . . a Better Finished Product is the final result. See it at the show.

YOU'LL SEE IT AT THE SHOW!

in operation at

BOOTH 1219
National Metal Exposition
Cleveland, Ohio
October 27-31, 1958

Write for Airless Spray Painting brochure.

NORDSON CORPORATION

FORMERLY BEDE PRODUCTS CORPORATION

THE BEST IN SPRAY COATING EQUIPMENT

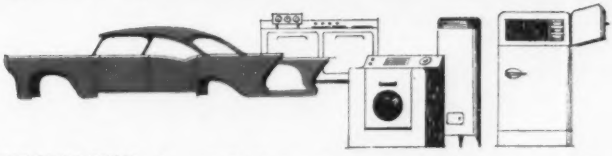
AMHERST, OHIO YUKON 8-4473

In Canada 864 Pape Ave., Toronto, Ontario

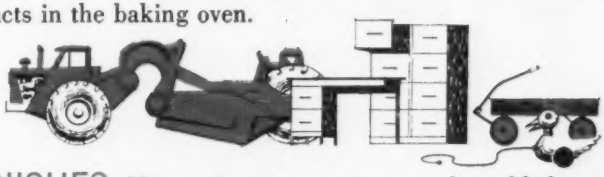
For more data circle 316 on Postpaid Card

ISOPHTHALIC RESINS

offer your products new sales appeal



BAKING FINISHES Isophthalic resins will produce a tougher, harder baking finish that will retain its original gloss. You also get a finish that has greater resistance to alkali, mineral spirits and water. And because of greater thermal stability of Isophthalic resins you can maintain higher-temperature baking schedules—less time needed for products in the baking oven.



INDUSTRIAL FINISHES Years of extra service can be added to metal-surface coatings by employing Isophthalic resins. Better film to metal bonding of Isophthalic resin paints means improved performance—saves time, cuts painting costs. The tougher films have better abrasion resistance, hold up longer under weather conditions, have better gloss retention. Isophthalic resin automotive refinishing enamels have held 85% of their original gloss after 24 months of outdoor weather exposure. There was no evidence of film failure by cracking or checking. They proved far superior to conventional refinishing enamels.

It's worth your time — now to get the full Isophthalic resin story. Write or phone the Oronite office nearest you.

ORONITE CHEMICAL COMPANY
A CALIFORNIA CHEMICAL COMPANY SUBSIDIARY
EXECUTIVE OFFICES • 200 Bush Street, San Francisco 20, California
SALES OFFICES • New York, Boston, Wilmington, Chicago, Cincinnati, Cleveland, Houston, Tulsa, Los Angeles, San Francisco, Seattle
Foreign Affiliate: California Chemical International, Inc., San Francisco, Geneva, Panama
5002
For more data circle 317 on Postpaid Card

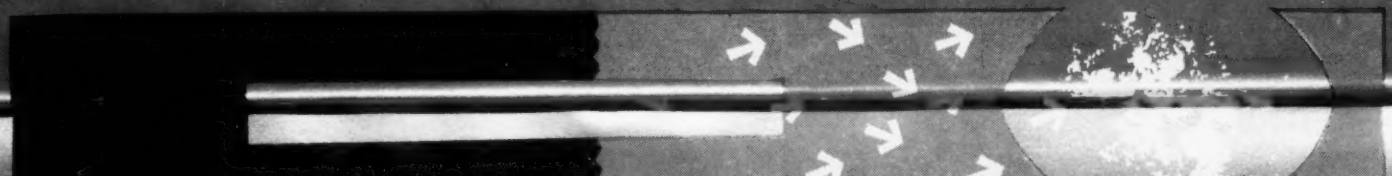
HARSHAW PRESENTS 2 *new, outstanding* BRIGHT COPPER PLATING PROCESSES

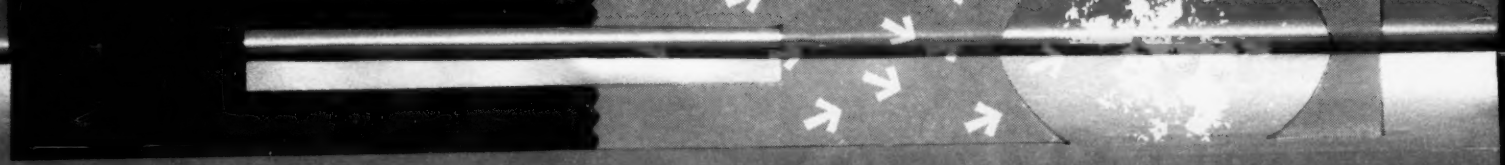
HARSHAW CYNOREX Copper Plating Process

(High Speed Copper Cyanide)

The Harshaw CYNOREX copper process is a new high speed copper cyanide bath which produces a bright and ductile copper by the use of a single addition agent designated as CYNOREX No. 1. It has many advantages including unusual brightness; a smooth fine grain and ductile deposit; stability; high efficiency; economical operation; and high tolerance to metallic impurities. The process can also be operated with air agitation.

The CYNOREX process is easy to maintain and operate because it has only one brightening addition agent. It is a non-metallic addition agent which is very stable and is not removed by carbon circulation. Since the brightener is not removed by carbon and the cathode and anode current efficiencies of the bath are 100%, operational costs are kept to a minimum. Because of the stability of the single brightening addition agent, the CYNOREX bath will produce satisfactory bright deposits even after extremely long periods of shutdown. A compatible wetting agent is available where operating conditions dictate its use.





HARSHAW

CUPREX

Copper Plating Process

(Acid Copper)

Among the advantages of the new CUPREX acid copper process are its superior brightness, excellent leveling, ductility, and stability. Also, the bath can be operated not only as a still or cathode rod agitated solution but also with air agitation. Another distinctive advantage of this process when operated still or with cathode rod agitation is that a cyanide copper strike is not required for adhesion of the copper to the base metal. As an air agitated solution the normal copper or nickel strike is required. The bath has indefinite operational life and therefore, the problem of treatment cleanups is at a minimum. In this respect CUPREX is superior to other bright acid copper plating processes.

The bright throwing power of the CUPREX copper bath is superior to any competitive acid copper plating solution. The deposit is the most easy to buff of any acid copper plate because of its great leveling and hiding power. Nodular build up in all instances is characteristically at a minimum.

The CUPREX process yields a deposit having a high ductility thru the entire range of conditions and compositions used to vary the deposit from an excellent semi-bright to the fully bright appearance so easily obtained.

Each of these new outstanding Harshaw Bright Copper Plating Processes has certain unusual characteristics which fit into the product finishing requirements in your plant.

Contact the Harshaw Branch nearest you. Harshaw representatives will be happy to discuss with you the application of these processes in your plant.

The Harshaw Chemical Co.

1945 East 97th Street • Cleveland 6, Ohio

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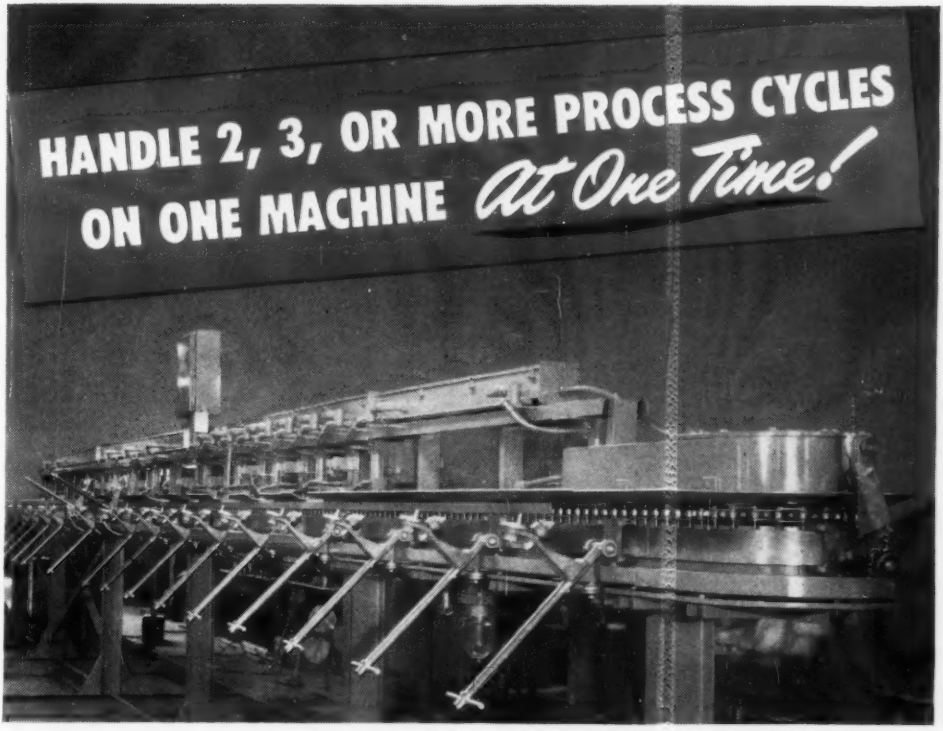

LASALCO'S *Select-O-Matic*

MULTIPLE PROCESS PLATER

Another Lasalco development that offers the industry the last word in **fully automatic** plating!

With the new Select-O-Matic, the operator simply selects the desired process cycle for individual racks, when loading the machine, merely by turning a dial on the carrier. From that point, the rack **automatically** travels through the entire selected cycle without further attention.

A single Select-O-Matic plater, manned by one operator, will handle several various processes simultaneously. Different machines for each process are eliminated—original investment in equipment is greatly reduced—much less floor space is needed—maintenance is cut to an absolute minimum.

The Select-O-Matic is easily adaptable to any operation. Tell Lasalco about **your** operation and requirements to learn what this new machine can do for **your** production and profits.

Write Today!

LASALCO, INC.

HOME OFFICE: 2820 LaSalle St. • St. Louis 4, Mo. • PRospect 1-2990
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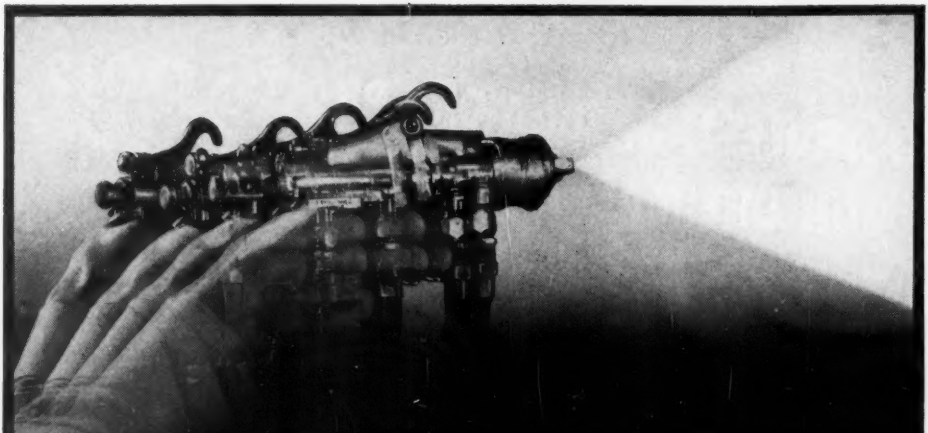
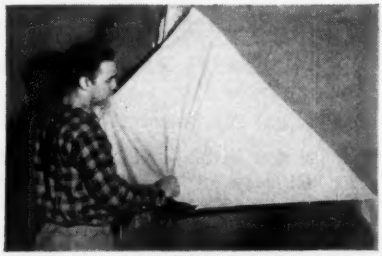


BOOTH-STRIP® spray booth coating covers completely with one pass of the gun

Because a single coat of BOOTH-STRIP is all you need, you get about twice the coverage per gallon, and it takes about half as long to apply. *That means lower labor cost, less down time of spray booth.*

- BOOTH-STRIP sprays on faster than a square foot per second. Covers entire booth in minutes. *Three-mil coat has tensile strength of 3,000 psi.*
- Comes ready to spray with standard equipment. No mixing or thinning. Equipment cleans with tap water.
- Dries opaque white to improve visibility.
- Water-based, completely fire-safe and non-toxic.



STRIPS OFF EASILY WITHOUT TEARING
Large areas of BOOTH-STRIP peel off readily in one piece from even the most irregular surfaces. Leaves spray booth clean as new.

Start saving money on spray booth housekeeping. Order a trial gallon of BOOTH-STRIP today.

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Whatever your Cleaning or Processing Problem...

Write to A-F FIRST!

A-F thrives on the "tough" jobs!

For example, *thirteen separate operations* are performed on hermetically sealed containers by this *completely co-ordinated* cleaning and processing system (partially shown above) which A-F engineered, manufactured and integrated into production lines for a large manufacturer. Transported on an A-F *Engineered* Conveying System, the heavy, hermetically sealed units flow quickly and efficiently through test for leaks, two washes, two rinses, drying, surface treatments, paint dipping, stenciling and paint baking.

With two integrated, correlated departments . . . one for engineering and manufacturing cleaning and processing equipment, the other for engineering conveying systems . . . A-F is *unique* in being able to offer *your* plant the cost-cutting efficiency and "quality control" provided by a *completely co-ordinated* system! Whatever the size and shape of *your* metal part or product . . . whatever the quantity . . . call on A-F first!

Write today for FREE 28-page brochure.

A-F

A-F *ENGINEERED*
Cleaning and Finishing Machines
Plant-wide Conveying Systems
Pre-Engineered Conveyors—Roller, Wheel, Belt, Trolley

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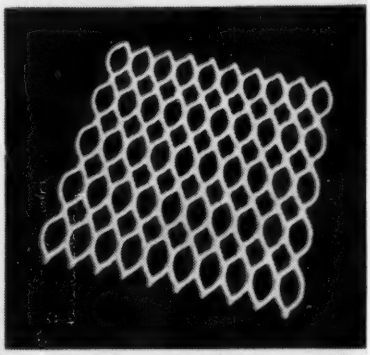
OUTSTANDING NEW QUALITY

with

CORVEL†

Fusion Bond Finishes



WIRE PRODUCTS

CASTINGS

STAMPINGS

• CORVEL Fusion Bond Finishes, applied by the fluidized bed process, now give these unique product finish advantages:

- Controlled thickness in one dip—from .005″ to .060″.
- Thorough coverage of corners, sharp edges, projections, joints and intersections—without bridging across gaps.
- Good adhesion to substrate surfaces.
- Resistance to corrosion and most chemicals.
- Premium appearance—multiple color selection, controlled sheen.
- Durable color and gloss.
- The RIGHT Finish for YOUR Product.

CORVEL Fusion Bond Finishes are powders specially formulated for use with the fluidized bed process. The part to be finished is first heated, then dipped into a fluidized bed of *dry* CORVEL powder. The powder, maintained in a state of whirling suspension, bonds by fusion on contact with the part.

CORVEL Finishes are now available in Cellulosic, Vinyl, Epoxy, Nylon, Chlorinated Polyether, and Ethylene base resins.

Fluidized Bed Process:

A new, patented production process for cladding metals and other materials with plastic resins—exclusively licensed in the U.S. and Canada by Polymer Processes, Inc., an affiliate company.

We invite your inquiry for product finish economy and improvement. Write today for our new CORVEL Bulletin.

NATIONAL POLYMER PRODUCTS, INC. / Reading, Pennsylvania

A subsidiary of The Polymer Corporation

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POLYPENCO

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1.7 ∧ 3.0 microns*

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Featuring

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VAPOR and LIQUID
TIGHT VENTING ASSEMBLY
ON ALL METAL HEATERS

and

NEO-TITE

VAPOR and LIQUID
TIGHT ASSEMBLY
ON ALL QUARTZ HEATERS

THERMARED, an improved line of immersion heaters, presented by **N.J. THERMEX**, introduces a new innovation of vapor venting to eliminate internal explosion in Quartz heaters. The **VAPO-VENT** assembly provides a venting system for expanding gases, a completely liquid sealed head assembly and an extremely versatile unit which permits field repair with standard replacement. These exclusve **THERMARED** features are further aided by the **NEO-TITE** vapor and liquid tight assembly which protects the heating elements in both Quartz and Steel units. Here at last, is a thoroughly versatile unit permitting even accidental total immersion in highly corrosive chemicals with no harm to the equipment.

These and many more features are fully detailed in our latest catalog available on request. Models in standard, thermostatic and remote control thermostatic units are available in Steel, Stainless Steel and Quartz construction.

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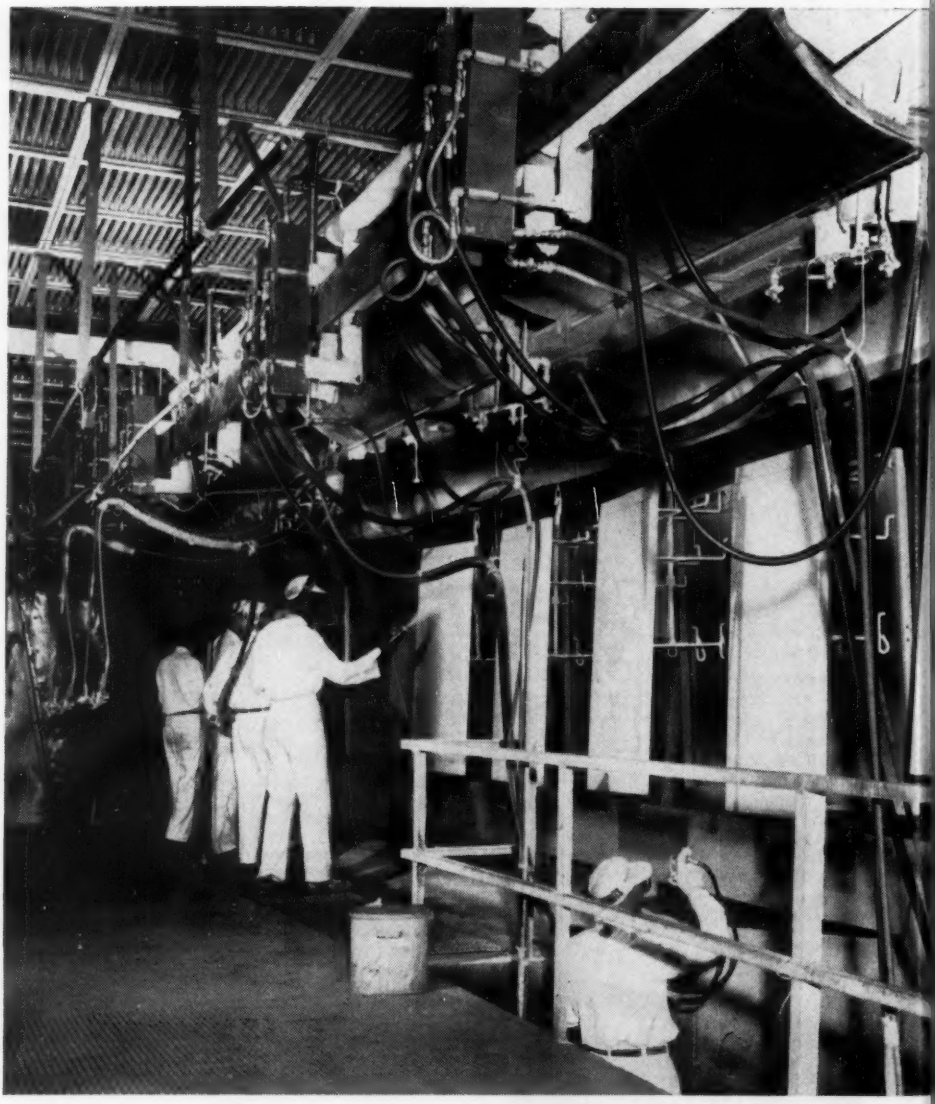
$75,000 a year saved.. th



Refrigerator doors are sprayed in DeVilbiss water-wash spray booth—o of eight such booths in this modern plant. A battery of DeVilbiss remo paint heaters serves the line; each station is equipped with two DeVilbi heat exchangers and spray guns.

..thanks to DeVilbiss Hot Spray

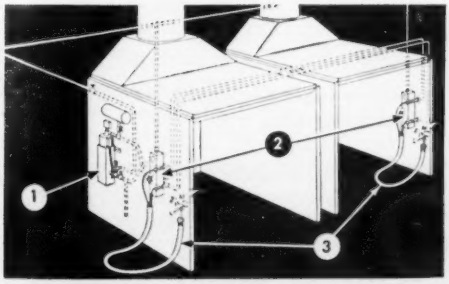
—another example of how the DeVilbiss spray method cuts material costs, reduces spray-booth maintenance

One of the world's largest appliance manufacturers has experienced important material savings as a result of a DeVilbiss hot-spray installation in its Midwest plant.

Although this equipment has been in operation less than two years, the company reports an estimated reduction in primer and enamel consumption of 10% to 15% compared to former cold-spray methods—a saving of about $75,000 annually! What's more, where spray booths once required cleaning 13 times a year, this has now been reduced to only 3 times a year—due to the reduction of spray fog.

Perhaps you, too, can profit from DeVilbiss hot spray. This method offers smoother finishes with less shrinkage; heavier film build; faster drying; and lower spraying pressure with minimum overspray!

Call your nearest DeVilbiss branch office today for complete details. Or write direct.



DeVilbiss hot-spray system is foolproof; adapts to multiple gun hook-ups. Hot water from master heater ① heats paint in exchangers ②; heat-jacketed hose assemblies ③ keep paint hot right up to guns, assuring uniform viscosity at all times at each gun.

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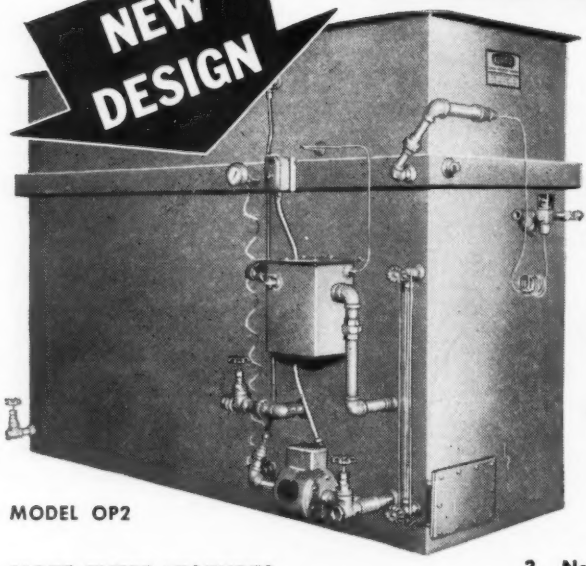
CIRCO DEGREASERS

NEW DESIGN



MODEL OP2

- ***Will last twice as long!***
- ***Reduce solvent costs 30% or more!***
- ***Cut labor costs!***
- ***Up to 40% less maintenance!***

NOTE THESE FEATURES . . .

1. **Unobstructed tank walls.** Condensing coil and condensate pan are recessed providing superior vapor control, effective solvent reclamation and unobstructed working area.
2. **Demand type water control.** Insures using water only when needed, thereby reducing operating cost. Placement of nickel plated condensate coils in conjunction with new type water control eliminates water condensation along the sidewalls of degreaser, thus, preventing rusting of the sidewalls and acid solvent, increasing the life of the degreaser.
3. **New pump design.** All pump parts are fabricated of stainless steel. The rotor and end plates are nickel clad. Rotating magnetic field drives impellor, thus, the pump is completely sealed except the intake and outlet, preventing leakage.
4. **Lower height.** Working height reduced for easy operation.
5. **Built-in storage tank.** Holds adequate reserve for flushing in addition to entire contents of degreaser sump.
6. **Less floor space.** Designed to operate from either side.

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OVER 208 STANDARD MODELS... including Circosonic ultrasonic degreasers. All backed by nation-wide technical field service.

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New additive improves all cyanide copper and bronze baths...

NEOCHEL*

M&T NEOCHEL, a compatible liquid formulation, can be used in place of Rochelle salt and proprietary additives to the great advantage of the user.

Improved cathode efficiency . . . Baths containing Neochel plate faster than those containing other additives.

Higher anode efficiency . . . even at current densities where other additives lose effect rapidly.

Minimizes effect of contaminants. With reducing and chelating action, NEOCHEL cuts effect of chromium contamination, promotes satisfactory deposits, reduces rejects.

Cuts cyanide consumption. Higher anode efficiency slows cyanide decomposition and consumption, thereby cutting a major bath upkeep cost.

Retards carbonate build-up. Less cyanide decomposition at anodes means less oxidation, less carbonate.

Smoother deposits . . . because anode corrosion is better; and troublesome hard water precipitates are reduced.

NEOCHEL outperforms anything that's been available to now to improve bath operation. It means more efficient cyanide copper and bronze plating, contributes to better results, helps curb operating problems. Cuts costs, too. It will pay you to get all the facts. Send for Bulletin No. 158.

**Pat. applied for.*

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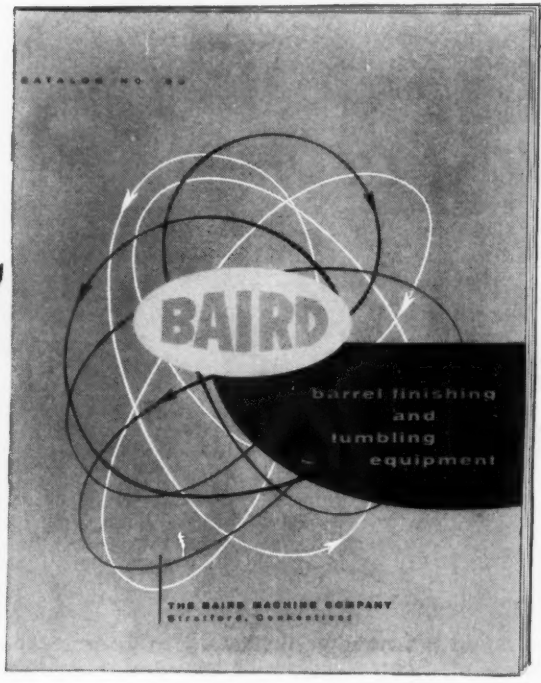
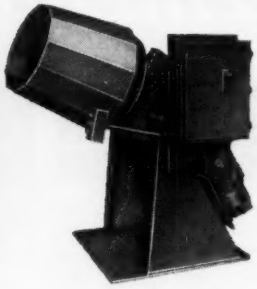


SEND FOR THIS NEW and comprehensive BAIRD Service Catalog.



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NEW "POLIACTION" BARREL FINISHING MACHINES
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BAIRD . . . one of the oldest and largest manufacturers of Barrel Finishing Equipment . . . is your headquarters for practical help on your problems. It always pays to . . .

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THE BAIRD MACHINE COMPANY, STRATFORD, CONNECTICUT

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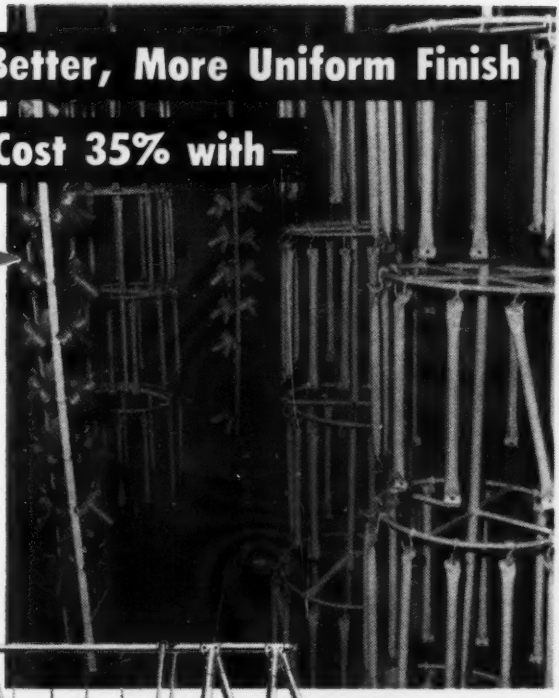
TURCO Gets a Better, More Uniform Finish And Cuts Paint Cost 35% with—

RANSBURG

NO. 2 PROCESS

Frequent color changes are simplified now in the painting of playground equipment with Ransburg Electro-Spray in this St. Louis plant. Long, tubular parts, as well as these smaller pieces, are uniformly coated with the Ransburg reciprocating disk.



QUALITY IMPROVEMENT! That was Turco Manufacturing's chief reason for changing from flo-coat to electrostatic spray painting of their quality line of playground equipment.

Not only is Ransburg No. 2 Process providing a higher quality, uniform coating on all parts, but Turco is saving 35% in paint cost!

Simplicity in color change with Electro-Spray is another important advantage here. With Turco's production methods, colors are changed 15 times in an 8-hour shift. Now, changes are made on the fly with no down-time. By contrast, the former "stop and go" method would mean over an hour's lost time in a day's operation.

NO REASON WHY YOU CAN'T DO IT TOO! Whatever your product, if it's painted, we'd like to tell you more about the worthwhile savings and benefits which can be yours with RANSBURG ELECTROSTATIC PAINTING PROCESSES. Write for our No. 2 Process brochure which cites many examples of electrostatic spray painting on a wide variety of products.

Call or write | **RANSBURG Electro-Coating Corp.**

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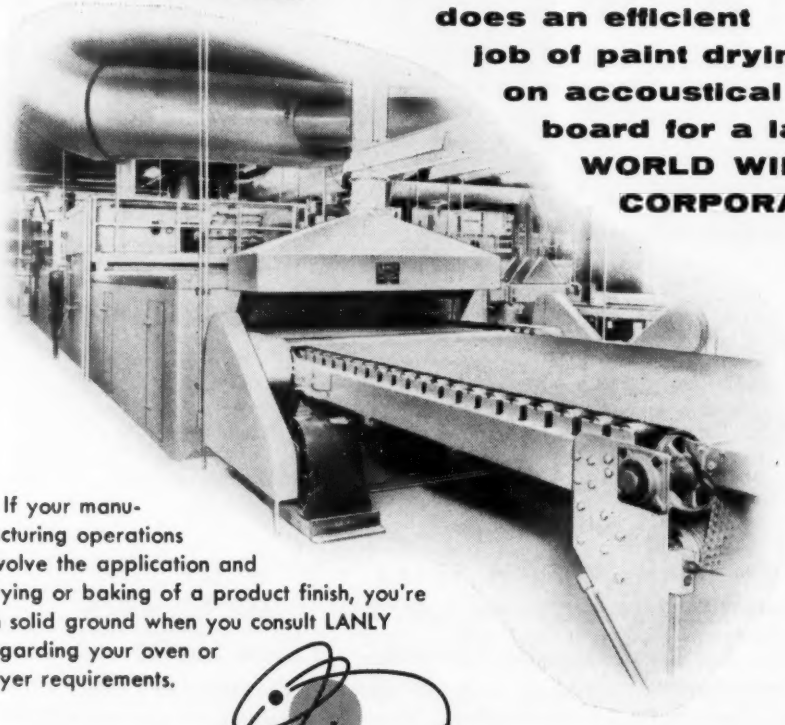
This lanly Conveyorized Lay-Down-Dryer

does an efficient job of paint drying on accoustical board for a large WORLD WIDE CORPORATION



If your manufacturing operations involve the application and drying or baking of a product finish, you're on solid ground when you consult LANLY regarding your oven or dryer requirements.

Find Your Representative In The Yellow Pages

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2800 Euclid Avenue • Cleveland 15, Ohio

LANLY welcomes a discussion of your drying and baking operation problems. Write for Catalog No. 560 and get better acquainted with our organization.

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Another plating problem solved by Sel-Rex!

FEDERAL TELEPHONE & RADIO IMPROVES ELECTRONIC COMPONENT RELIABILITY WITH SEL-REX BRIGHT GOLD

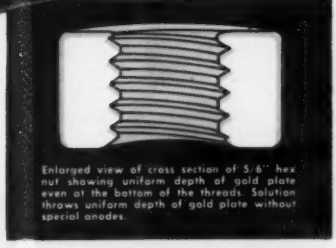
Plated with only twenty-millionths of an inch of Sel-Rex Bright Gold over 0.001" of silver, sand-cast bronze electronic chassis showed no evidence of corrosion after a 65-hour salt spray test. This was proved at Federal Telephone and Radio's Clifton, New Jersey plant.

Sel-Rex Bright Gold is used on a variety of electronic parts at Federal because, to quote Mr. William F. Boyle, Chief Metallurgist, the deposits are ". . . fine grained and dense, giving exact duplication of the surface plated . . . (it) eliminates galling in sliding electrical contacts" and has "effected a tremendous saving" over previous materials and methods.

These reasons, and many others, also explain why the instrumentation of the newest rockets, guided missiles, the earth satellites and many of the "hottest" airplanes have Sel-Rex Bright Gold on their electronic equipment and circuitry.

Whatever your plating problem—precious metals, power, equipment or procedures—Sel-Rex Representatives are trained to "Custom Engineer" solutions to our mutual profit. Send for FREE technical data and other case histories, and see for yourself . . . we may have solved your problem last month.

Printed circuit panels with bright gold plate eliminates need of air conditioned cabinets to prevent migration. The Gold does not oxidize, makes good soldered joints for all electrical work.



Enlarged view of cross section of 5/8" hex nut showing uniform depth of gold plate even at the bottom of the threads. Solution throws uniform depth of gold plate without special anodes.

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NUTLEY 10, NEW JERSEY

Manufacturers of Exclusive Precious Metals Processes, Metallic Power Rectifiers, Airborne Power Equipment, Liquid Clarification Filters, Metal Finishing Equipment and Supplies.

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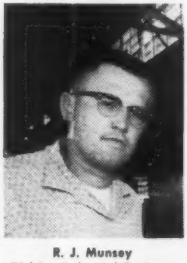
"THIS STEVENS BARREL PLATING MACHINE IS SAVING EATON THOUSANDS OF DOLLARS...

...and it's completely automatic!" says R. J. Munsey



R. J. Munsey
Division Industrial Engineer
Reliance Division
Eaton Mfg. Co.
Massillon, Ohio

A Stevens Automatic Barrel Plating Machine, with *one* operator is cadmium plating 1,750 pounds of lockwashers, Springtites, and Keps an hour for Eaton. It has also . . .

- INCREASED PRODUCTION 270%
- REDUCED REJECTS TO LESS THAN 1%
- REDUCED REQUIRED FLOOR SPACE BY 400 SQ. FT.

These savings, both in supplies and labor, mean volume production for Eaton Manufacturing Co. They've discovered, as have an increasing number of progressive companies, that Stevens equipment assures maximum production and superior quality.

Lower costs, consistent quality and assured production are only a *few* of the reasons why Stevens Automatic Barrel Plating Machines are the leaders in their field. For more details, contact your local Stevens Sales Representative today! Find out why more and more metal finishers are looking to Stevens for production savings.

Remember—When you go Automatic...go Stevens!

frederic b. | **STEVENS,** inc.

DETROIT 16, MICH.

BUFFALO CHICAGO DETROIT CLEVELAND
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new ALEMITE VERSATAL® paint pump..

Pumps paint direct from drum to point of application

for any painting or production line finishing . . . coating or outdoor application!

Twice the power! High-speed, 2 to 1 ratio pump provides paint pressure double the air pressure applied to pump!

Exclusive "Tri-Flow" tube system! Paint is delivered through three separate tubes for volume flow.

Open-frame design! Separates air motor from pump assembly. Eliminates material contamination of motor.

Smoother delivery! Double-action pump delivers on both up and down stroke.

Swivel-bung mounting! Special built-in swivel bung adapter allows drum change without disconnecting hose.

Lightweight! Weighs only 20 lbs. Material outlet, ¾" p.t.

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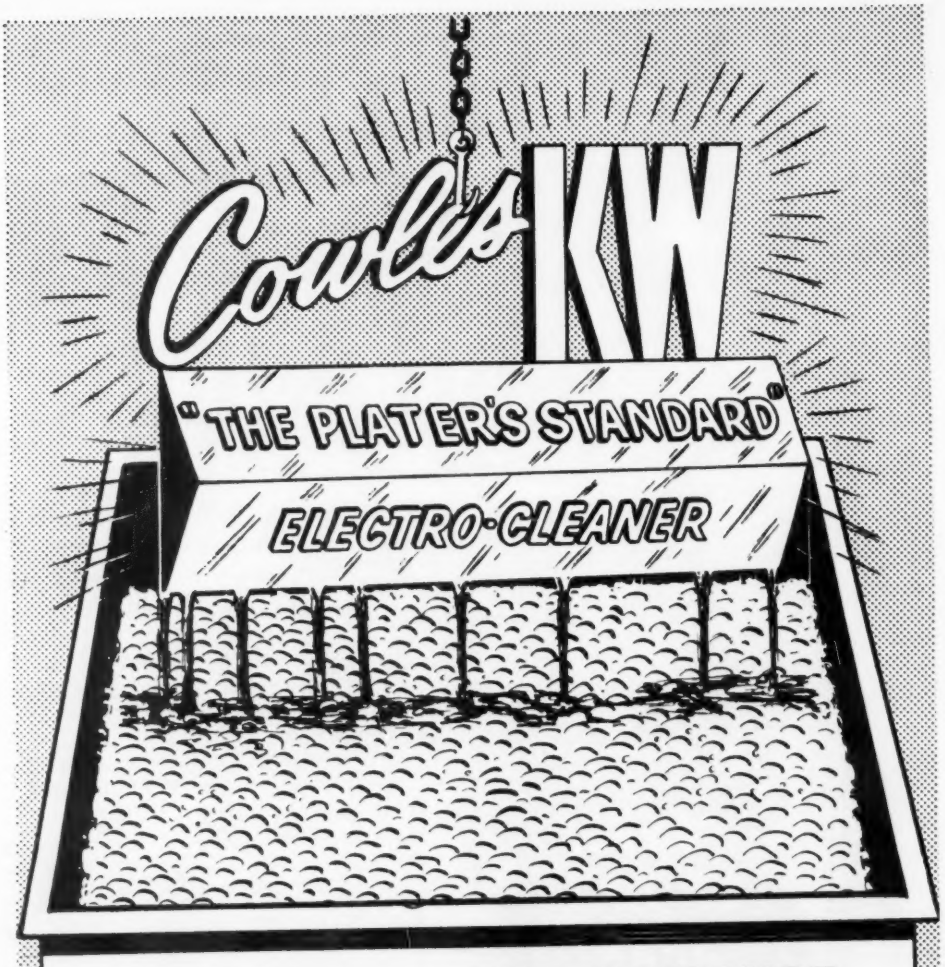

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editorial

Age of Instrumentation

Speaking before the Instrument Society of America at Philadelphia on September 18, Henry B. du Pont, vice president and director of E. I. du Pont de Nemours & Co., stated in part: "Machinery was the instrument which . . . characterized the first great stage of American industrial development. Today, we are on the doorstep of another era of equal significance. If the latter half of the nineteenth century were the age of machines, the latter half of the twentieth century may well be . . . the age of instrumentation, or . . . the age in which we developed machines to operate machines—and operate them more skillfully and more efficiently than ever before.

"Instrumentation, as we understand it today, ... (is) an integral part of industrial processing, actuating control mechanisms without further human intervention. This permits us today to use highly complex production processes and to control them very largely through automatic devices."

Instrumentation and automatic control are well established in the finishing industry. There are automatic controls to regulate (as well as record) the current that goes into electroplating or anodizing processes. Temperatures of the various solutions are controlled (and recorded if required) by instruments. Time and process cycles are regulated. pH can be controlled automatically. The concentration of contaminants in rinse solutions can be held within prescribed limits automatically. Current reversing and current interupting mechanisms are well understood in principle and application. On many automatic plating machines, an instrument panel locates the exact source of any possible trouble in the process.

In the article, "Anodizing Racks Tell Large Automatic: This Tank Next" beginning on page 48, a process control cycle is described in which the anodizing racks actually select the cycle through which they will be processed.

In paint finishing an equal array of impressive automatic controls actuated by instruments is in use. Temperatures in cleaning and phosphatizing solutions are controlled automatically. Oven temperatures, too, can be regulated so that the desired baking cycle will be obtained. Viscosity of paint in flow coat systems can be controlled automatically, and solvent addition records kept automatically. Instruments operate spray guns, which paint only when loaded hooks on the conveyor pass the guns. Empty hooks will not actuate the instruments or guns.

In spite of the impressive array of instruments now in use, it is safe to say that it is small compared to the number that will be developed for the finishing industry. The progressive finisher will have to alter his operations, be alert and imaginative to make sure he is making fullest use of the ever-expanding instrumentation that is now just in its infancy, just as the hand craftsman had to make rapid changes as the machine age began. Today's instruments control processes; perhaps tomorrow's instruments will direct them.

Ezra A. Blount

—EDITOR

Finishing Industry Interviews

Part IV in a series of interviews with prominent people in the finishing industry

products feature finishing

Myron B. Diggin, vice president and technical director, Hanson-Van Winkle-Munning Company, Matawan, N. J.

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Myron B. Diggin: Multi-Layer Coatings of Nickel Increase Serviceability

Mr. Diggin, would you care to comment on developments being made in the plating industry which will have the result of creating wider markets for plating?

Mr. Diggin: Basically, there are three primary and interrelated factors which, aside from general business activity, are responsible for the market for decorative plated coatings. One is style preferences of the consumer, which could either dictate the greater use of plating, a continuation at the present rate or conceivably cause a decreased use. The second factor is quality and serviceability. This not only involves a product satisfactory in appearance but one which will not corrode, rust, flake, peel, blister or wear abnormally in service. The remaining factor is cost, which may be the deciding factor as to whether or not plating is used.

The use of plating for engineering or functional purposes is influenced by the latter two factors of serviceability and cost.

Any developments to improve appearance, serviceability or reduce cost would tend to expand the use of plating. Fortunately, there are several continuing developments which would appear to hold promise in this direction. In the decorative nickel-chromium field, the use of multi-layer or duplex coatings of nickel has increased the serviceability of the deposits. At the same time, leveling action of these deposits has lessened the polishing and buffing costs. Work on improvement of the component layers of the duplex deposits is continuing.

Chemical polishing, electropolishing and the increasing use of automatic polishing employing liquid abrasive compounds has, in many cases, lowered the overall cost in arriving at an acceptable finish.

Automatic processing in full automatic rack conveyors and barrel conveyors with built-in load and unload devices has reduced costs considerably and assisted in the production of a standardized coating. Continuous plating equipment for preplating strip and wire is more attractive now because of electrochemical and mechanical developments which enable the lines to be operated at higher speeds.

Plating for functional purposes is being benefitted by recent and continuing developments of plating baths that can produce controllable deposit characteristics such as stress, ductility, hardness, conductivity, throwing power, distribution and reproducibility. One example of this is the increased use of sulfamate nickel solutions both here and abroad for electroforming objects, build-up of worn and mismachined parts, use in graphic arts industry and for manufacture of high-fidelity record stampers.

Do you believe that there is a substantial increase in the use of plating on parts for military hardware? If so, can these applications be discussed in general terms?

Mr. Diggin: Military "hardware" covers a lot of ground. The character of our weapons and devices is changing with newer concepts of warfare. Many items formerly plated are either obsolete or not of prime importance in today's defense setup. There has been a gain in plating in electronic equipment, missiles and some of the newer devices, but it is my observation that net gains in plating in this field have not been substantial.

Are there new uses and new applications for plating (and anodizing) which will have the effect of expanding the plating industry?

Mr. Diggin: The new uses for plating are but a small proportion of the total volume of plating. However, there should be a substantial gain in plating for engineering and functional purposes. There is a growing market for preplated and preanodized strip and wire stock with coatings that will withstand subsequent fabrication operations. The use of high dielectric anodized coatings as insulation on motor windings and other electrical devices to withstand high temperature operation is also growing rapidly.

A broad answer to this question is that there are no developments known at the present time that will have a profound influence on the volume of plating, but technological advances such as we observe each year will not only expand plating to a moderate degree but should help to prevent inroads by substitution.

★ ★ ★

Leo Missel: Plated Parts for Electronic and Critical Engineering Applications Should Be Tested for Proper Functioning

Mr. Missel, would you care to discuss some of the finishing prob-

lems of the aircraft and missile industry or those of your geographical section of the country?

Mr. Missel: The problems of the aircraft industry are better known, so I will discuss problems of the missile industry which differ from those of the aircraft industry.

On missile skins and motors heat is developed more rapidly, and higher temperatures are reached. But heat exposure time is also very small compared with that for aircraft. Adequate finishing must provide resistance to thermal shock rather than the long-time heat resistance required in many aircraft applications. This, in practice, often calls for different materials and higher quality plating than is normally available. Plating has been used successfully in even the most demanding applications. But the amount of this kind of work is very small compared with the many instances in which proper plating could have provided the optimum coating if more imagination and development work were applied.

Leo Missel (right) discusses function testing of plated parts for electronic applications. Mr. Missel is manufacturing research engineer with Lockheed Aircraft Corporation, Missile Systems Division, Van Nuys, California. He is a member of the Los Angeles Branch of the A E. S., and has presented papers at several national conventions of the society. (Photograph by PRODUCTS FINISHING)

Considerable work has been done with ceramic coatings, and even organic finishes have been used on slower vehicles. There is considerable demand for better and more heat-resistant organic finishes.

By slower moving vehicles, are you speaking about aircraft or missiles?

Mr. Missel: Well, I would say vehicles traveling up to a speed of mach 4.

Then you're speaking of missiles.

Mr. Missel: Generally, yes. A better organic finishing system for such vehicles is very much needed.

Now, insofar as the electronic and other internal components are concerned, one basic problem stems from confusion and misapplication of materials in finishing specifications. Thermal shock and high temperature inside the missile are ordinarily no problem, but poor accessibility will often make electroplating very difficult or even impossible. The protective coatings employed have, in practice, often proved inadequate.

It is time for a fresh look to be taken in the production of internal plumbing and other items with inaccessible areas requiring protection. One approach might be electroforming in two stages with the protective layer deposited adjacent to the mandril. In any case, better protection, reliability, and produci-

bility than provided by conventional methods would be very helpful.

In printed circuitry there is a particularly wide diversity of opinion among people who are using printed circuits. This is a field in which there is absolutely no standardization and in which there are just about as many attitudes toward what is needed as there are people using the printed circuits.

By what is needed, do you mean what finishing process is needed to produce the printed circuit, or what manufacturing process is needed, or do you mean some characteristic of the finished printed circuit itself?

Mr. Missel: For example, regarding the interconnection in the board from one side to the other, there is controversy as to the best method. Some say plated-through holes is the best system, others say eyelets are better, some use a combination of the two. There is as much controversy about this as there is about the relative merits of zinc and cadmium plating.

Within the same company very often one division will use plated-through holes and another division will use eyelets. In one case this confusion has led to a division wherein an eastern company uses both plated-through holes and eyelets on the same boards to play safe. This is a field where new economies and better and more uniform quality might swing the balance to the use of electroplating.

Plating on etched boards is another such field. Solderable coatings is another field in which there is a wide diversity of opinion. Until the approach to printed circuitry becomes more standardized, the plater will be in a very difficult position.

By solderable coatings, do you mean the tin alloys?

Mr. Missel: Not necessarily tin alloys. A solderable coating could be gold or pure tin and, on components where migration is no problem, it could be silver. There's no reason for ruling out any solderable material, unless there are other factors involved. Here again confusion and misapplication of materials and processes on many electronic components are common, particularly in the preparation of metals which are difficult to solder and with marginal configurations.

Some people have encountered trouble because of the use of metallic brighteners where coatings which should have been, for example, pure silver, were silver alloys, and the final coating did not give the desired electronic properties. Also, there is some very bad work going out on certain electronic components where the coating will look good but it does not have the required electronic properties. In many cases, this is caused by poor cleaning. Actually, I would say that check-out of the plating afterwards reveals cleaning of an almost unbelievably poor nature. We have found rust and grease under silver plate applied by a few vendors! We have discovered this not by the poor appearance of the part, but on electronic checking where there was too much loss of response — sometimes as much as an 8-10 decibel loss. The same parts after stripping, adequate cleaning, and proper silver plating in our own plant gave a zero decibel loss.

Apparently our paper on "Cleaning" here at this convention, even though it was of very fundamental nature, was not out of order.

Mr. Missel: I don't think that cleaning can be overemphasized.

On another subject, I have found a few instances where specifications called for considerable thickness of silver and, upon checking, it was determined that the parts were copper plated, with a flash of silver.

That raises an interesting point. Apparently you use electronic checking as a quality control procedure.

Mr. Missel: Yes, it's like any functional test. The basic criterion is not whether you have so much silver or so much copper or so much gold. The basic requirement is that the part will perform satisfactorily in the component for which it was designed.

Plating requirements, if possible, should be based on service experience rather than laboratory tests. Basically, all adhesion tests, salt spray tests, and any other type of simulated service test, are methods of obtaining answers which fundamentally are obtainable only in service. Where such tests are necessary, and they frequently are, test conditions should as closely as possible simulate service conditions.

Of course, corrosion tests are called accelerated service tests.

Mr. Missel: Very frequently any relationship between resistance to salt spray and resistance to the actual environment is only coincidental. In the final analysis, there is no substitute for a part functioning in service.

Acknowledgment

—These interviews were recorded during the 45th Annual Convention of the American Electroplaters' Society, held in Cincinnati, Ohio, in May, 1958. The editors of PRODUCTS FINISHING gratefully acknowledge the cooperation of all the people who participated.

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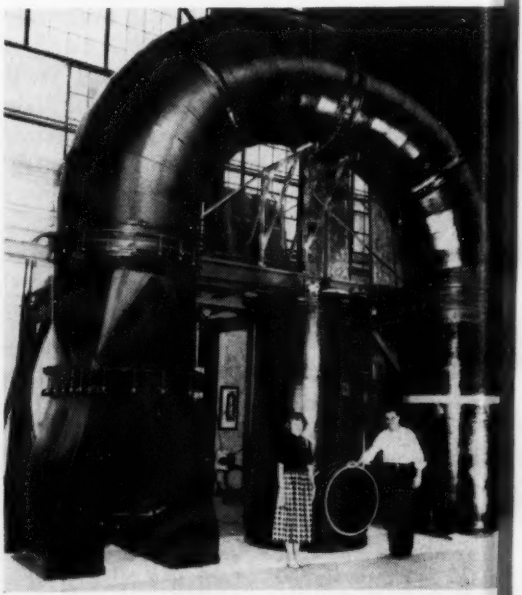
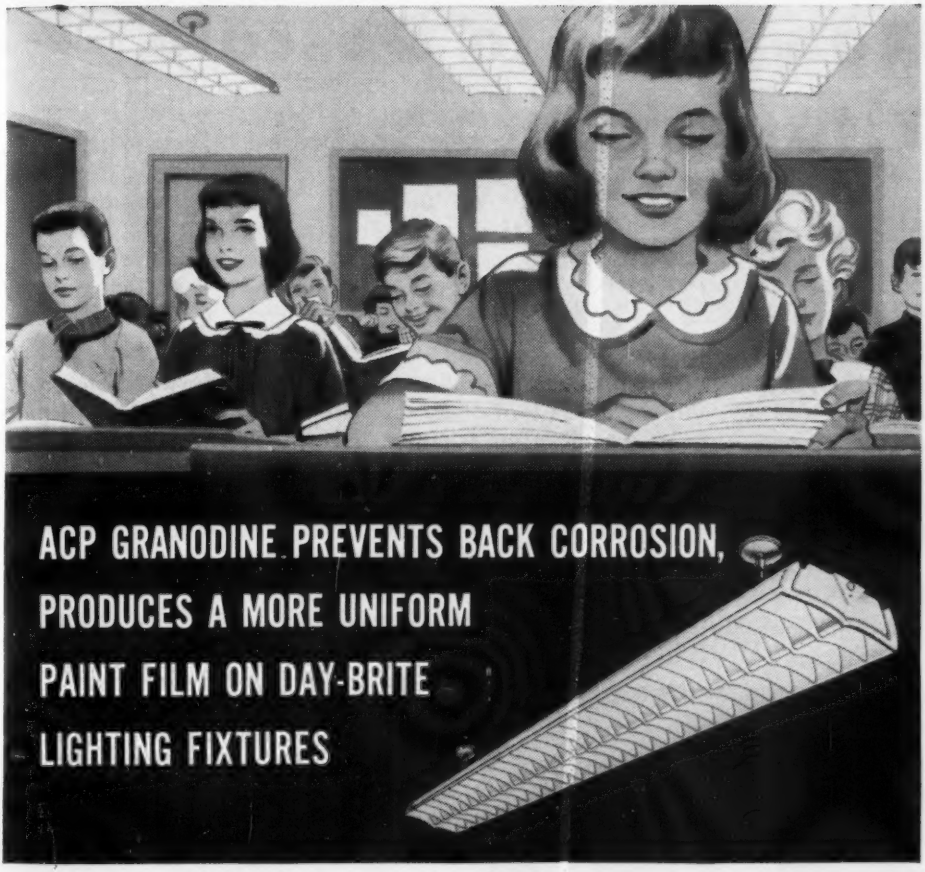
Giant Fume Duct Made Entirely of Plastic

The plastic fume duct system shown in the accompanying photograph is designed to handle wet sulfur dioxide and sulfuric acid fumes resulting from metal finishing operations. It is one of the largest fume duct exhaust systems ever produced.

Made by Haveg Industries, Inc., Wilmington, Del., this duct is large enough so that two men could crawl through side by side. It is strong enough to be self supporting.





Especially adapted to high-level school and office lighting, the Luvex is a typical example of the highly efficient lighting fixtures produced by Day-Brite Lighting, Inc. One of the features of these outstanding light sources is the use of a zinc phosphate coating to provide a better paint bond and prevent underpaint corrosion. ACP GRANODINE was selected for the job because it proved superior to other methods of prepaint treatment. The process is carried on in a 5-stage system which includes preclean, water rinse, the GRANODINE treatment, water rinse, and final acidulated rinse. It takes only minutes to complete the treatment and to provide a uniform, long-lasting finish for the lighting fixtures.

Perhaps you have a problem of bonding paint to metal, of improving corrosion resistance, of preventing impact damage. Our technical people will be glad to discuss it with you and give you the full story of ACP chemical prepaint treatments. To have an ACP man call on you, write us at Ambler.

Day-Brite and Luvex are registered trademarks of Day-Brite Lighting, Inc. GRANODINE is a registered trademark of Amchem Products, Inc.

Amchem Products, Inc. Ambler 14, Pa.

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New Way to Descale Titanium

New process does it gently, cuts rejects to a minimum . . .

An electrolytic process for descaling titanium developed and patented by Temco Aircraft Corporation has made a substantial cut in the aircraft maker's reject volume in processing titanium parts.

Developed in Temco's materials and processing labs by J. J. Dailey, the process is called "Ti-Brite." It's an important step forward in processing the "wonder" metal, especially for the aircraft industry, which is using titanium more and more because its high strength-to-weight ratio, high melting point and corrosion-resistance qualities are so valuable in jet-aircraft manufacture.

Fig. 1—John J. Dailey, left, materials processing engineer for Temco Aircraft Corporation, Ti-Brite's developer, examines clean titanium sheet as it leaves electrolytic descaling tank.

Temco had a powerful incentive to find a better way of descaling titanium. The Texas aircraft company has become one of the largest users of the expensive ($30,000 a ton) material, now consumes an average of almost 13 tons a month. A great deal of this titanium goes into the fuselage of the McDonnel F-101. Lesser quantities also go into the McDonnel F3H Demon, the Lockheed C-130 Hercules, the Boeing B-52 G Stratofortress, and the Pratt & Whitney J-57 jet engine. In all Temco uses more than 10,000 titanium parts each month on various aircraft subcontract programs.

The aircraft industry's marriage to titanium has not been without problems. Biggest problem has been scale removal. Scale lowers corrosion resistance of titanium, makes inspection difficult, sometimes hastens fatigue. Scale formation is a necessary evil in the fabrication of titanium parts, as it forms quickly

during the hot-forming and stress-relieving operations necessary in making parts from titanium and its alloys. Scale could be prevented only by costly processing in inert-gas atmospheres.

Previous methods for scale removal included acid pickling, a molten-salt-bath process and abrasion methods. Each had drawbacks.

Pickling in a mixture of nitric and hydrofluoric acids removes scale, but it's a severe treatment that often results in etching the portions of the metal that aren't scaled. It even alters gauge in some cases. To get around this, parts can be immersed for a short time and then scrubbed by hand to remove remaining scale. Naturally, this is time consuming, and scale in crevices and bends, where hand scrubbing is impossible, never does get removed. In addition, pickling is severely hampered by oils, greases, inks and other soils that coat the metal during fabricating operations. Thus thorough cleaning is necessary before pickling.

Molten salt baths composed of salts of alkali metals descale titanium, but they, too, have disadvantages: high original cost, high-temperature (700-900 deg. F.) operation, accurate temperature-control requirements, and the necessity of post treatments to remove discoloration and brighten.

Abrasive blasting used for forgings and heavily scaled parts leaves a matte, or scratched surface on the parts.

In contrast, the Ti-Brite process removes scale with so little effect on the base metal that machining marks are still visible after the

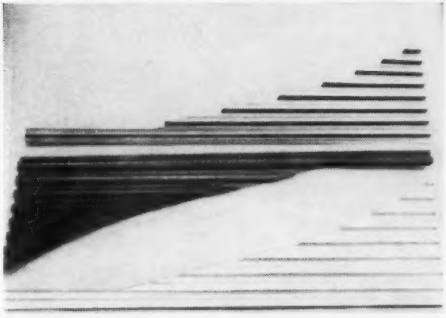

Fig. 2—Corrugated titanium stiffeners used to require considerable effort to descale. Before-and-after photo shows excellent cleaning job that is done by Tri-Brite process.

treatment. The surface is essentially free of oxide after the treatment, and it has a uniform appearance, requires little subsequent manual labor. Titanium articles of almost any size or configuration can be freed of scale that forms in the temperature range of 400 to 1,300 deg. F.

The Temco process is essentially a conventional cathodic treatment in a mixture of acids inhibited by sulfates. Formulation of the bath:

Material	Concentration (By Volume)
Hydrofluoric Acid (48-70 per cent)	1 per cent
Nitric Acid (38-46 degrees Be)	4 per cent
Sulfuric Acid (60-66 degrees Be)	20 per cent
Water	75 per cent
Ferrous Sulfate	3-5 oz./gal. of other ingredients

The sulfuric acid and sulfate inhibit the reaction of the solution with the base metal and prevent formation of black smut after scale has been removed.

The titanium article to be de-

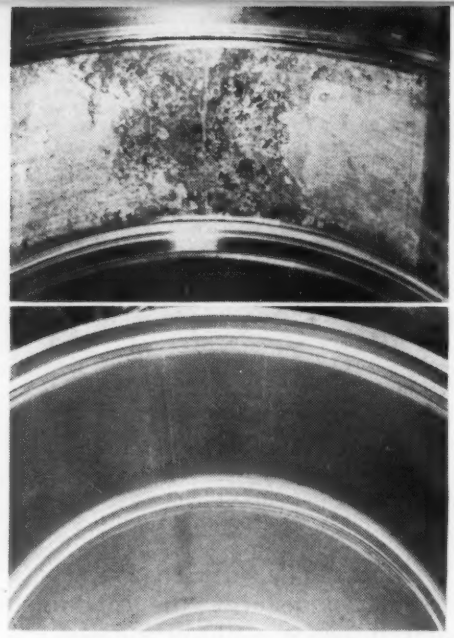

Fig. 3—J-57 jet engine case before and after descaling by Temco's Ti-Brite process.

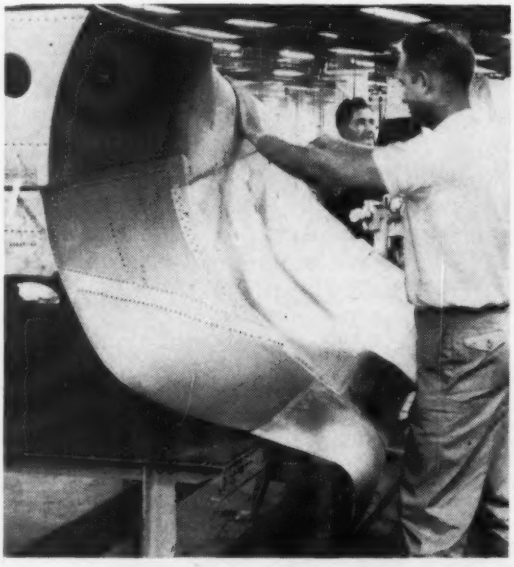

Fig. 4—Inspection of large assemblies such as this titanium ventral assembly for the McDonnel F-101 Voodoo is made easier by complete removal of scale. (Photos courtesy Temco Aircraft Corp., Dallas, Texas.)

scaled is made the cathode and direct current (6 to 36 volts) is passed for one to three minutes from this cathode to a titanium or ferrous metal anode. Current is reversed for one to three minutes (this hastens scale removal) and then reversed again to pass current in the same direction first used. The treatment is continued until visual inspection shows that scale removal is such that remaining scale will be taken off in the rinse with a minimum of hand labor. Time required is dependent upon the extent of scale formation, the current density and the bath concentration.

Parts are removed from the bath, immediately rinsed in room-temperature water and air dried. They are then inspected for completion of scale removal. Any parts still showing scale are given a second electrolytic treatment.

Temco has granted exclusive license for its patented process to Delco Chemicals, Inc., which will license all users of the process.

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For the Woman Who Has Everything

Gold plating will help to sell a line of glamorous hand tools with dainty handles, designed for the lady of the house. Milady has become so mechanized with her automatic washers, dryers, "dispose-alls", dish-washers and can openers that the need for a set of tools for the woman who has everything but nothing to fix it with has become apparent. The attractive six- and ten-piece sets will soon make their appearance in department stores.

Properties and Uses of Catalytic Coatings

By JOHN F. HOWE
President
Industrial Finishes Co., Inc.
Philadelphia, Pennsylvania

Catalytic protective coatings are combinations of vehicles and rust-inhibitive pigments with a catalytic agent. Such coatings are designed to make possible a chemical treatment and rust-inhibitive coating in one application. The catalytic agent, when combined with the metal, produces a rust-inhibitive coating with excellent resistance to salt water, moisture or humidity, acid and gaseous fumes.

Catalytic coatings possess excellent top coat durability when unprotected by top coats. The product will dry-to-handle in five to ten minutes. Once the film has been thoroughly dried, it cannot be removed except by sandblasting or other vigorous methods. It is also one of the few organic compounds that can resist atomic radiation.

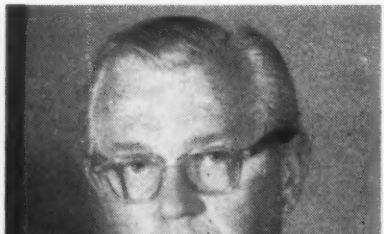
In addition to speed of dry, catalytic coatings have excellent adhesion and wetting properties. The baking cycle is flexible—very low to very high ranges of heat. Other characteristics can be listed as follows:

Adhesion between coatings—most types of top coats, such as alkyds, acrylics, Lucite, and so on.

Heat resistance—1200 deg. F.

Salt spray resistance—over 1500 hours.

Fig. 1—Workman applies catalytic coating to steel cabinet, using conventional spray. Coating dries to handle in five to ten minutes.



JOHN F. HOWE has a long background of experience in the paint industry. He founded Industrial Finishes Company, Inc., in 1955 with several former associates from the DuPont Company. He was associated with DuPont from 1923 to 1947, rising to the post of district manager, Paint Division. From 1947 to 1955 he was vice-president of the Eastern States Paint & Varnish Company. He was prominent in the promotion and sales of Duco and Dulux when they were first introduced by DuPont.

Constant humidity — over 1500 hours.

Acid and alkali resistance.

Catalytic coatings form a combination chemical and paint coating for all types of metal such as steel, stainless steel, zinc, cadmium, tin, aluminum, galvanized iron, magnesium.

The coating material is stable for an indefinite period of time after it is mixed. Its pot life is longer than a year.

Catalytic coatings produced by Industrial Finishes Co., Inc., can be applied by brush, spray, roller coat, dip, electrostatic spray and flow-coat methods. Only conventional cleaning is required before IFCO is applied.

A catalytic coating to be used as an acid resistant coating or for severe corrosion conditions should be applied as a three-coat system to a total film thickness of 0.003 inch (3 mils). For spraying under these conditions the catalytic coating should be reduced in the ratio of 1 part of paint to 1 part of reducer. Apply each coat in a film thickness of 1 mil (0.001 inch). Allow approximately 30 minutes air-dry time between coats. Longer time between coats will not affect the system. The complete coat should be allowed to air dry, or it can be baked for 20 minutes at 300 deg. F.

A number of case histories furnished by various users of catalytic coatings provide examples of successful applications.

An appliance manufacturer coated steel parts with catalytic coatings and subjected them to 500 hours in boiling water. The coating survived this test.

An experienced and well-qualified technologist of a large corporation conducted a test on 8 coatings recommended for their resistance to MIL-L-7808, an ester lubricant which has a destructive effect on paint coatings. This lubricant is used in engines for jet planes. The catalytic coating was unaffected by the chemical lubricant. The test included resistance to the chemical lubricant heated at 250 deg. C. for over 1000 hours.

The automatic bowling pin setters manufactured by Otis Elevator

Company are composed of several dissimilar metals. A single coat of a catalytic finish is applied over all.

Radio Corporation of America sought a protective coating for use on commercial transmitters, 16-mm projectors, electron microscopes, and a substantial array of equipment, among which was some intended for use under extremes of atmospheric conditions. The coating was to be used as a universal primer with good adhesion on as many materials as possible.

RCA sample testing of IFCO Gray Catalytic and IFCO Black Catalytic primers was conducted on several metals: brass was coated with an 0.001-inch-thick catalytic film baked at 300 deg. F.; aluminum was coated under the same conditions; copper was finished with an 0.001-inch-thick catalytic film baked at 300 deg. F.; steel was coated and baked under the same conditions.

These systems were subjected to 200 hours salt spray as per United States Government standard test QQ-M-151. At the end of this test there was no evidence of any film breakdown; adhesion was still excellent on all samples. A relative humidity test was performed on similar samples at 99 per cent r.h. and 95 deg. F. for 150 hours. At the end of this test adhesion was still excellent on all samples.

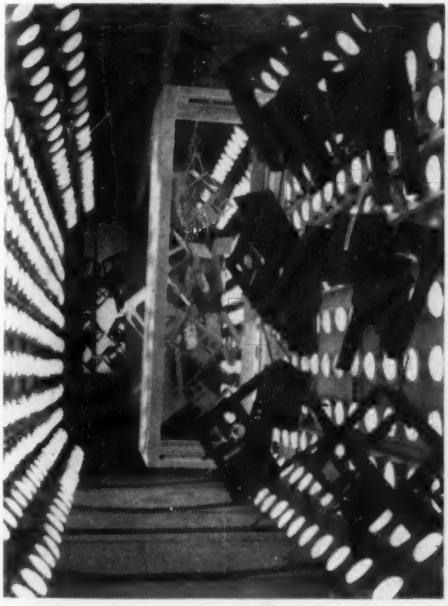


Fig. 2—Cabinet and miscellaneous small parts sprayed with catalytic coating move through an infrared baking oven.

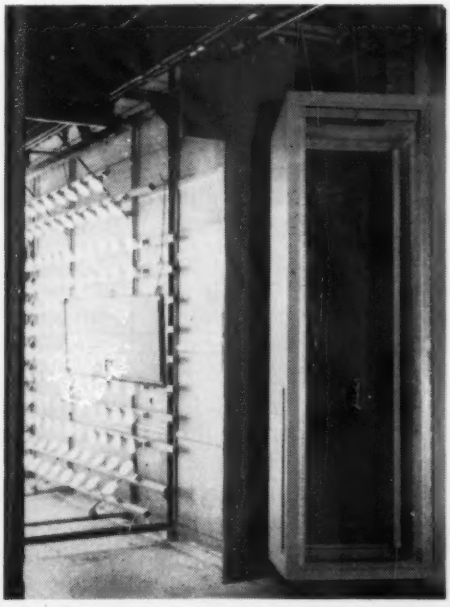


Fig. 3—Section of a painted cabinet leaving the baking oven. Parts are usually baked for 20 minutes at 300 degrees Fahrenheit.

Anodizing Racks Tell Large Au

An automatic anodizing machine that takes commands from each rack of parts helped resolve a dilemma: How do you custom anodize for manufacturers who demand special treatment and yet keep your operation on a mass-production basis? Here's how The Electric Auto-Lite Company solved the problem at its Bay City, Michigan plant.

By **ROBERT A. NYQUIST**
Chief Chemist
Bay Manufacturing Division
Electric Auto-Lite Company

If all aluminum automotive parts were anodized at the same depth and dyed the same color, suppliers would have a simple task. But with anodized aluminum used for all types of trim, Detroit firms specify dozens of finishes.

The independent supplier often produces for more than one auto maker. Parts must be anodized quickly and at a low cost. But parts with different finishes need separate cycles.

A rack of side panel trim for one automobile manufacturer is given a plain anodized finish. It may be followed by a rack of side panel trim that takes a gold dye, or by a rack of grilles for another auto maker, calling for a different gold shade.

One solution would be to "back up" parts until enough collected for a full run. But this means machine down-time while changeover is made for each run. The best answer, then, would be a method to permit separate cycles for each rack of parts, fed at random into the machine.

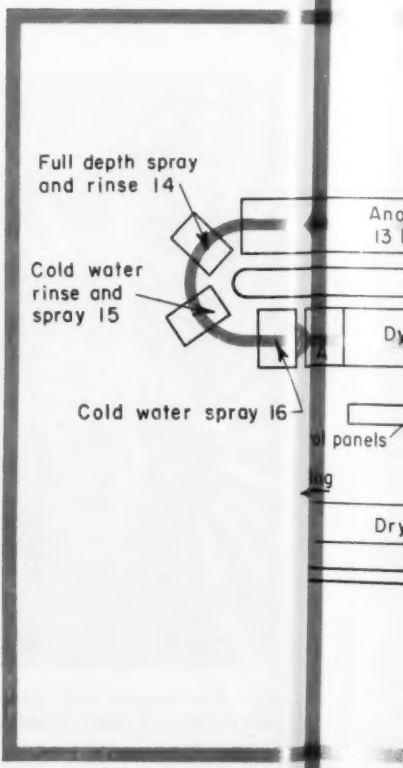


Fig. 1—Diagram of Electric Auto-Lite's Bay Manufacturing anodizing conveyor. Machine is completely automated.

Automatic: This Tank Next

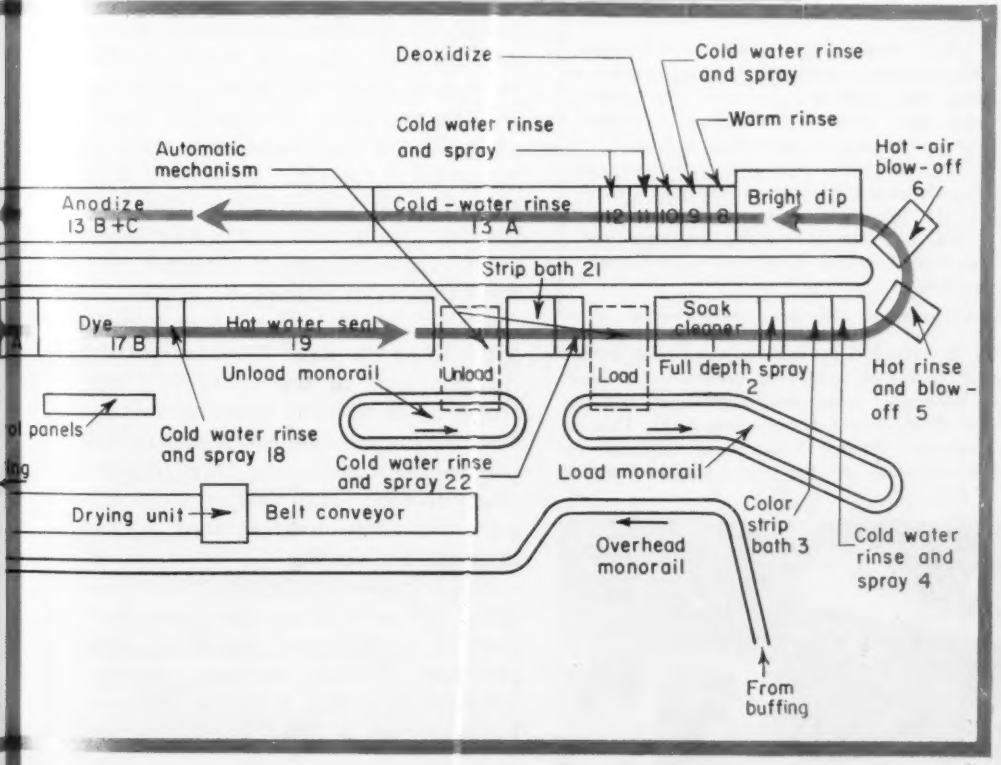
The Racks Give The "Orders"

The anodizing machine in use at the Bay Manufacturing Division (Fig. 1) permits such variations. It was designed by the Hanson-Van Winkle-Munning Company of Matawan, N. J., with Auto-Lite specifying the cycles.

A rack "indexing" system allows Auto-Lite to handle changes quickly. It permits each rack of parts to follow its own cycle (Table I), independent of the racks ahead or behind.

The racks themselves select the cycle. Index trips on the racks contact limit switches on the tanks, and determine whether the rack will descend into a solution or pass over it to the next tank.

Each part has its own racks, with the proper trips. A great deal of research has been done on anodizing racks in this operation, and Auto-



About the Author

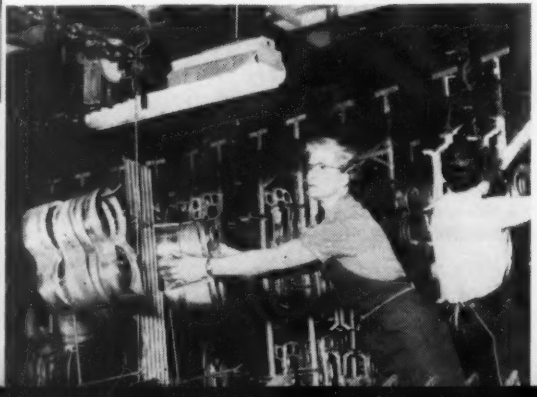
ROBERT A. NYQUIST has been with the Electric Auto-Lite Company since 1942. Since 1951 he has been chief chemist of the Bay Manufacturing Division, Bay City, Michigan.

He is responsible for all metal processing, including anodizing, plating, painting and other surface treatments. The laboratory staff, under his direction, maintains constant control of all these processes.

Mr. Nyquist majored in chemistry at the University of Minnesota, also attended the Illinois Institute of Technology.

He is a member of the Saginaw Valley Branch of the American Electroplaters' Society.

Fig. 2—Work is loaded for anodizing. Buffed parts arrive by overhead monorail. The loaders determine which treatments parts will get, load them on the appropriate racks. This arrangement frees the conveyor operator for full attention to his various other duties.



Lite has worked closely with the manufacturers to develop types that will give top performance. Since the beginning, titanium has been used for all exposed clips.

Plastisol coatings on the racks have shown excellent resistance to anodizing solutions. When recoating is necessary, the rack manufacturer does it.

Parts Follow A Predetermined Cycle

Parts are buffed prior to anodizing to remove scratches and brighten. A headlight shell, for example, is buffed on an automatic lathe to eliminate stamping irregularities. Each buffing head is equipped with a Liquimatic compound spraying system.

From the buffing lathe, the parts travel by overhead monorail to the loading station in the anodizing department. Here five operators transfer the parts to the proper racks (Fig. 2) on the constantly moving monorail. One side of the rack is loaded as it moves along the load station, then an automatic turn mechanism swings it around and the other side is loaded.

Racks are transferred automatically from the load monorail to the carrier arms of the anodizing machine by a shuttle transfer mechanism. The carrier arms each hold two racks of the same type of part. Once loaded, the carrier arm follows its own independent cycle through the tanks.

Each type of rack has projections (Fig. 3) which are positioned to contact a different series of limit switches. These switches control solenoid-operated bypass flippers. Each carrier is fitted with a bypass

roller and roller support. When a switch is contacted by the rack, the flipper shunts this roller onto a bypass track. This track holds the carrier in the air until it reaches the next tank in the cycle. If the rack does not contact a limit switch, the carrier arm descends into the tank.

An auxiliary set of manual bypass controls built into the machine is used during weekend shutdowns. By tripping these manual controls, all racks are held above the solution tanks. This prevents unnecessary rack corrosion or contamination of solutions.

The automatic anodizing, coloring machine has been operating for over a year. At the present time, three cycles are being used, one for

Table I

CYCLE OF ANODIZING TREATMENTS

Treatment	Number of Carriers	Immersion Time	Automatic Bypass	Manual Bypass
1. Soak clean	4	3 min. 30 sec.		x
2. Full depth spray	1	30 "		
3. Color strip bath	2	1 min. 30 sec.	x	x
4. Cold water rinse and spray	1	30 "		
5. Hot rinse and blow-off	1	30 "		
6. Hot air blow-off	1	30 "		
7. Bright dip	4	3 min. 30 sec.		x
8. Warm rinse	1	30 "		
9. Cold water rinse and spray	1	30 "		
10. Deoxidize	1	30 "		
11. Cold water rinse and spray	1	30 "		
12. Cold water rinse and spray	1	30 "		
13A. Cold water rinse	9	8 min.	x	x
13B&C. Anodize	21	20 min.	x	x
14. Full depth spray and rinse	1	30 "		
15. Cold water rinse and spray	1	30 "		
16. Cold water spray	1	30 "		
17A. Car 'A' dye	5	4 min.	x	
17B. Car 'B' dye	5	4 min.	x	
18. Cold water rinse and spray	1	30 "		
19. Hot water seal	10	8 min.	x	x
20. Automatic unload mechanism	2	. . . . .		
21. Strip bath	2	1 min. 30 sec.	x	
22. Cold water rinse and spray	1	30 "		

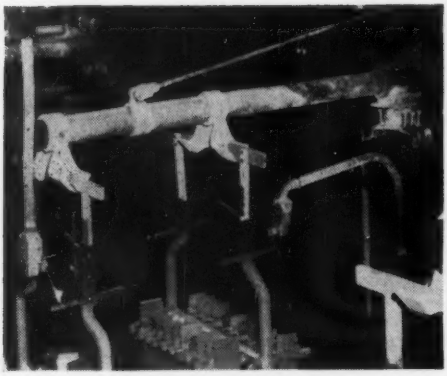


Fig. 3—Rack projections that program the cycle are shown here as they contact limiting switches that will cause the work to lower into a dye bath. Note that two limiting switches are installed at the same control point. This provides double assurance that treatment bath will not be bypassed.

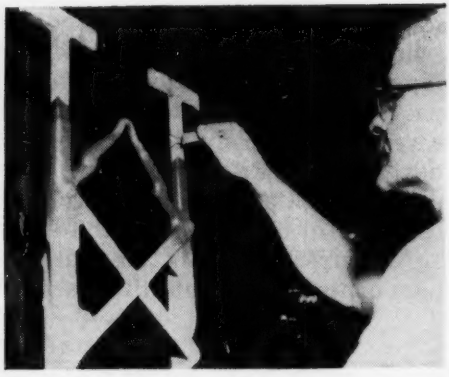


Fig. 4—Positioning an adjustable rack projection for special programming. Standard racks are designed for completely automatic programming of the bulk of the work. Flexibility is provided by adjustable clips that can be hand set for special treatment, including bypassing of certain treatment tanks.

each of the three automobile makers supplied. The number of cycles possible is almost unlimited, however. As demands for specific treatment alter, racks are added with the proper indexing trips and a new cycle is placed in operation—automatically.

For special short-run orders, temporary indexing trip pins (Fig. 4) are added to special racks. This permits choosing a special cycle for a single rack of parts, or for a short-run of any amount. Experimental racks are set up in this manner, and special finishes may be obtained without interrupting the regular production run on the machine.

The H-VW-M machine has been operating three shifts, round-the-clock, five days a week. In three shifts, 85,000 square feet of parts are anodized. A complete cycle takes one hour and 45 minutes from load to unload.

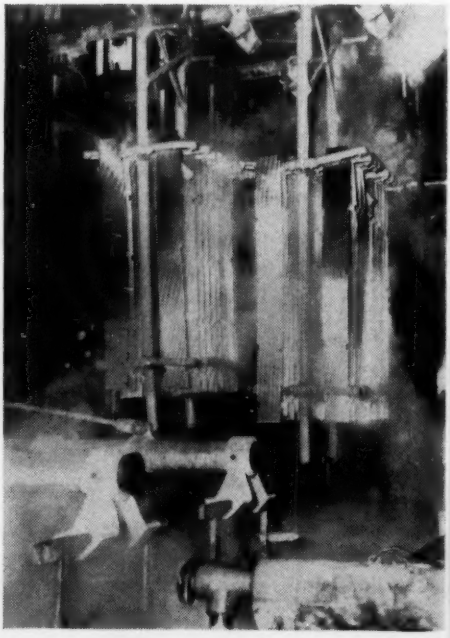


Fig. 5—Emerging from hot water seal, aluminum trim panels for a 1958 model automobile are shown just as they are about to be lowered to unload transfer mechanism.

An automatic transfer mechanism removes the two racks from each carrier arm (Figs. 5, 6) and transfers them to the unload monorail conveyor. Here the parts are unracked by two operators and placed on a canvas belt conveyor (Fig. 7), which carries them under an infrared dryer and then to inspection and packing stations.

Giant Conveyor Fully Automated

The anodizing conveyor requires one operator on each shift, and an assistant who mans an inspection station on the rear of the racetrack-shaped machine. A large control panel (Fig. 8) at the operator's station has indicator lights and off-on switches for each function. A breakdown or over-travel anywhere during the cycle will automatically stop the machine and the indicator lights will pinpoint the trouble spot.

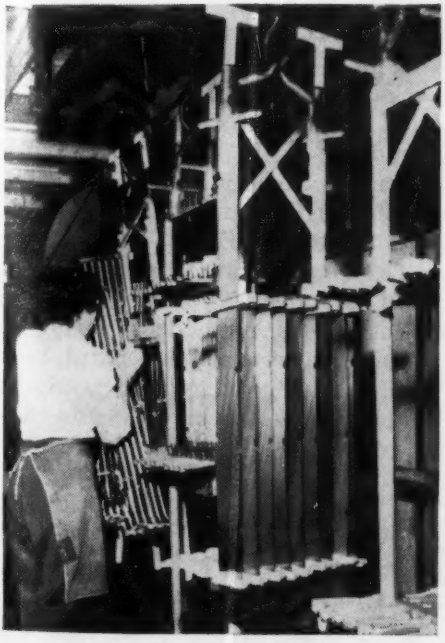


Fig. 6—Work is unloaded from racks at load-unload station. Note that rack in foreground is revolving to facilitate unloading of work that is suspended on opposite side of rack.

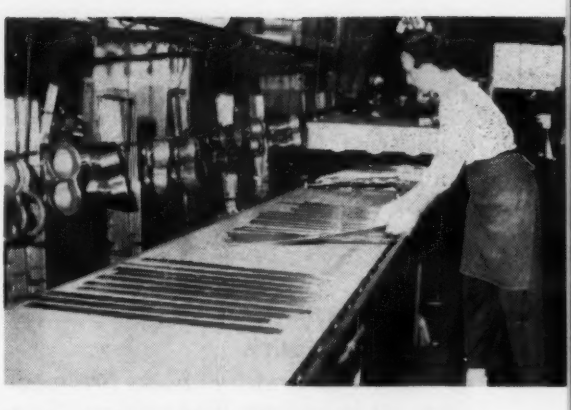


Fig. 7—Conveyor belt carries finished parts that have just been removed from unload-transfer mechanism to shipping department. Note infrared drying canopy in background, also overhead monorail (left) carrying buffed parts to the anodizing tank. Complete cycle takes one hour and 45 minutes.

Two 10,000-ampere generators supply the eight to 12 amperes per square foot required for anodizing aluminum. To maintain even temperatures, a heat exchanger and refrigeration system control temperature of the solutions within plus or minus two degrees Fahrenheit. Solution is pumped through the graphite tubes of the heat exchanger by a 15-h.p. electric motor.

A 7½-h.p. motor pumps cooling water (45 deg. F.) from the two 75-ton Freon refrigerators through the exchanger at the rate of 345 gallons per minute. This maintains the anodizing solutions at 70 deg. F. at any operating current up to 30,000 amperes at 15 volts.

Air agitation and motor agitation

are used for the tanks. Since shop air lines usually have a high level of oil vapor, a separate compressor is used to supply filtered air to the machine.

Laboratory Inspections Ensure Quality

Daily laboratory checks are made on all solutions. The various solutions used are held in large, below-floor storage tanks and are pumped to the anodizing tanks as required.

When laboratory tests or a visual level check by the operator indicate more solution is needed for a tank, a switch on the control panel is depressed. The needed solution is then pumped into the tank so that solution concentration is restored to proper level.

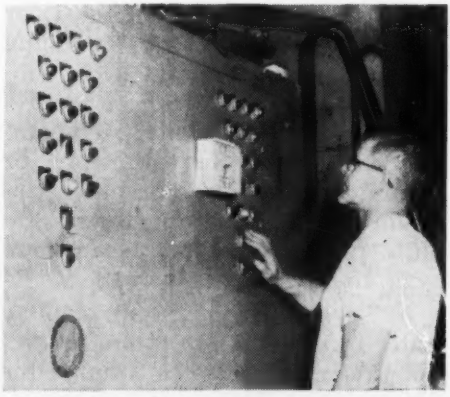


Fig. 8—Centralized control panels. The clock is an elapsed time meter. At this point the machine may be started, stopped or placed on standby. Here, too, bypass of color strip bath is controlled. (Photos courtesy Hanson-Van Winkle-Munning Co., Matawan, N. J.)

A Survey of Paint Application Methods

A series of articles on painting methods have been reprinted as a 64-page booklet.

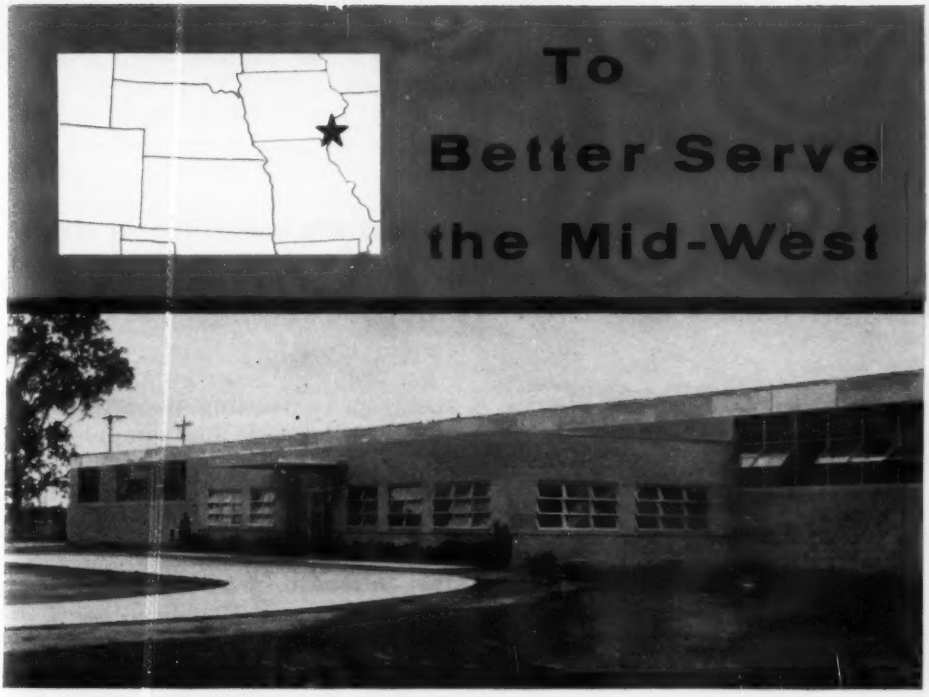
Chapters in the report cover: 1) Use of the Spray Gun. 2) Conveyorized Spray Finishing; Automatic Spraying; Electrostatic Spray Painting. 3) Hot Spray; Airless Spraying; Steam Spray Painting; Spraying Catalyst Coatings. 4) Dipping Methods; Flow Coating. 5) Roller Coating; Tumble and Centrifugal Painting; Silk Screening; Aerosol Painting.

Reprints of *A Survey of Paint Application Methods* are available at 50 cents a copy. Write to PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio.

Paint, Varnish, Lacquer, and Related Products. Compilation of Standards D-1. Available from American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. 900 Pages. Price, $8.25.

This publication has been compiled to collect all of the A.S.T.M. specifications, methods of test, and definitions pertaining to paint, varnish, lacquer, and related products so as to have all of them together in convenient form for the use of the industry.

It contains some 200 standards of which 27 are new, revised or have had their status recently changed. Among these are standards for pigments, drying oils, paint driers, thinners, shellac, varnish, lacquer, traffic paint, bituminous emulsions, printing inks, putty, glazing and caulking compounds.



At East Moline, Illinois, in the heart of the Quad-Cities, comes a new plant and office for Tousey Varnish Co. offering closer contact and service to the many new manufacturing areas west of the Mississippi.

Tousey engineers and designers have planned this new plant to be one of almost complete automation—from storage tanks and bins through the mixing process to the end product all is handled automatically and without interruption. Complete shipping facilities allow a choice of truck or rail delivery. With this latest type equipment installed throughout, the production in this compact 20,000 sq. ft. plant can exceed 1,000,000 gallons of paint per year.

For more than 70 years Tousey has been supplying weather resistant paints, varnishes, sealers, lacquers and synthetics to agricultural and industrial manufacturers all over the country. With this new addition at East Moline, Ill., Tousey hopes to better service their many customers in the Mid-West.

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Painting Playground Equipment

Toy manufacturer installs electrostatic painting system, is able to double conveyor speed, change colors fifteen times a day, improve housekeeping . . .

By **ROBERT FEIGENBAUM**
Secretary-Treasurer, General Manager
Turco Manufacturing Company

Uniform paint distribution on long tubular parts such as are used in assembling gym sets was a problem for Turco Manufacturing Co., St. Louis manufacturer of playground equipment. Variation of as much as 2.5 mils on a single part caused headaches for the quality control department.

The reciprocating-disc electrostatic spray painting system recently installed for the company by Ransburg Electro-Coating Corporation has solved the problem, makes it possible to apply a uniform film even on tubular pieces seven to ten feet in length.

The system was installed primarily to improve quality. But it gives other bonus advantages. Color changes are quick and easy—the company now changes colors as many as fifteen times a day—"on the fly." And overspray produced by the system is practically nonexistent, so that paint is conserved and housekeeping is easier. The pace has been increased, too. The 732-foot conveyor line that used to operate at four feet per minute now moves along at a brisk eight feet per minute. The only other major change in this company's painting process was an increase in oven capacity to keep up with the increased conveyor speed.

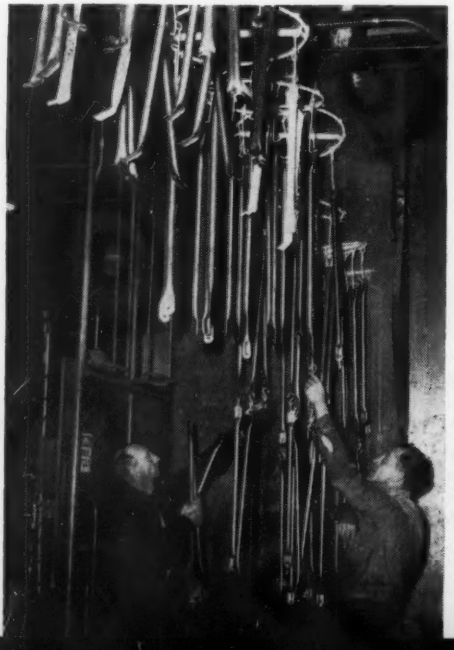


Fig. 1—Because of the length of some pieces of playground equipment, unpainted long parts are first hung on the conveyor from a platform built several feet above floor level. Other loaders shown here on the floor level attach the smaller pieces before the conveyor travels into a two-stage washing machine.

The Finishing Process

Because of the length of some of the parts, unpainted pieces are hung on the conveyor (Fig. 1) from platforms built above floor level. Parts to be painted are grouped on workholders according to size. One part is two-inch tubing eight feet long. Eight such parts are hung vertically on the fixture on two-foot centers. As many as forty smaller pieces are grouped on a single fixture.

From the loading station, parts travel through a two-stage cleaning and phosphatizing unit, then dry, then go to the painting area.

All workholders rotate as the conveyor makes a loop around the pit-mounted reciprocating disc, which is 25 inches in diameter with a maximum stroke 14 feet long.

The paint distribution system includes three pumps—one to supply each of the colors normally used—red, green and yellow. From the bottom of each drum, a circulating line leads to the intake side of the pump. There is a T-shaped pipe on the discharge side of the pump. One leg of the T comes from the pump, one goes back to the supply drum; the other leg feeds a vertical standpipe. A valve on the leg returning to the supply drum determines which direction the paint will go: closing the valve forces the paint up into the standpipe, opening the valve allows the paint to recirculate to the drum. Paint that travels up the standpipe reaches a master control valve that can be positioned to any color. Polyethylene tubing carries the paint from this valve to the Ransburg reciprocating disc.

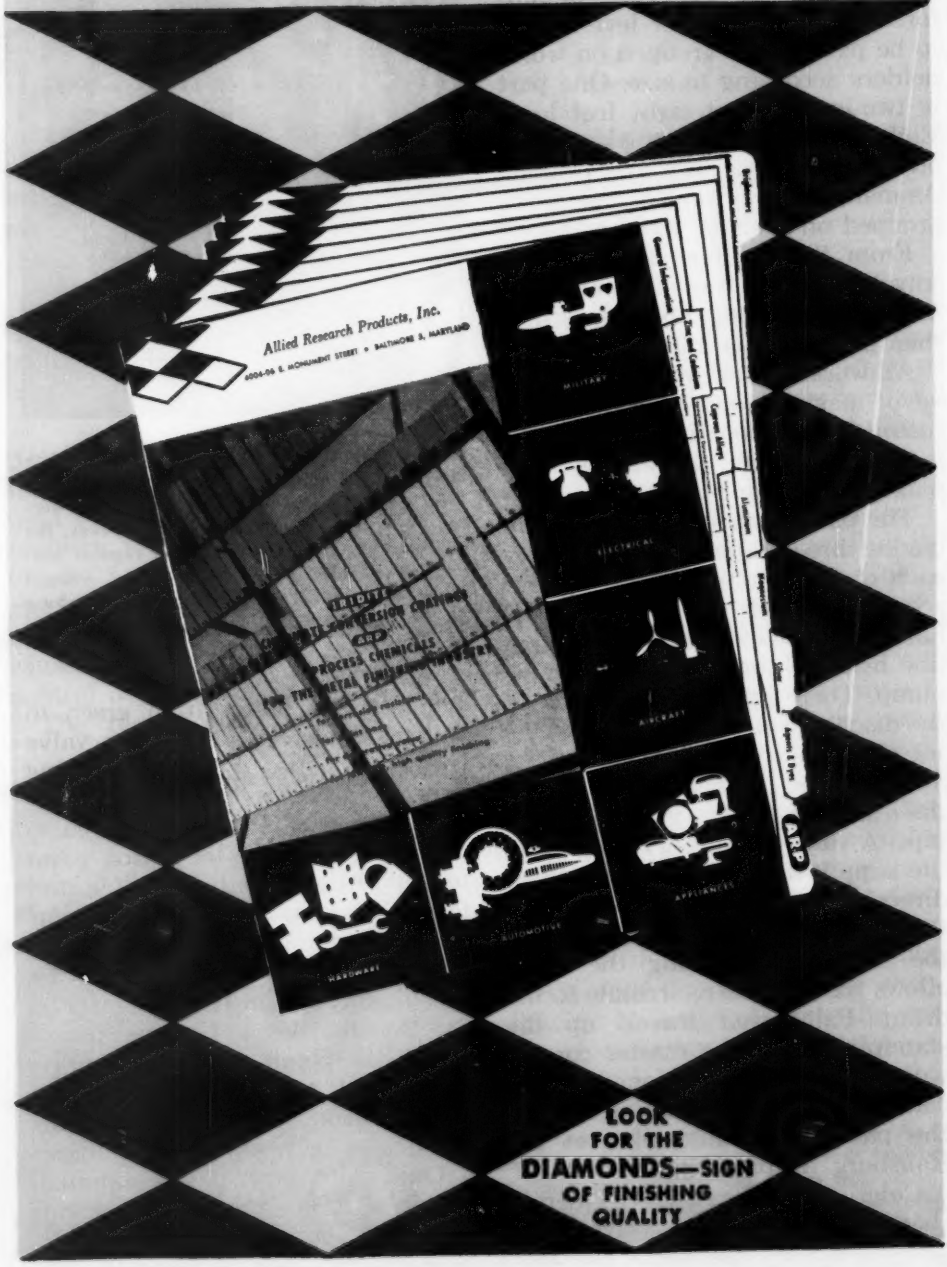
Color change requires merely changing positions of valves. For example, to change from green to yellow, the green circulating valve is opened, the yellow circulating valve is closed and the master control valve is switched from green to yellow. This causes the yellow paint to enter the polyethylene line and force the green paint from the line.

Fig. 2—Dummy panels enter the spray booth during color change. Twelve of these panels travel through the booth to catch paint during the change. As the last panel leaves, the new color is spraying, ready for regular production painting. All this is done without down time. (Photographs courtesy Ransburg Electro-Coating Corp., Indianapolis, Indiana)

Twelve dummy panels are placed on the conveyor line to receive the green paint still in the system (Fig. 2). As the last of these panels leaves the booth the disc is spraying yellow paint. No color distortion is encountered by not cleaning the orifice between color changes.

One shift now paints approximately 15,000 pieces of varying sizes and shapes.

Useful Technical Data File . . .



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How to Make and Install an Air-Agitation System

A few simple rules that help in designing and installing an air-agitation system for a plating tank . . .

Materials of Construction

Plastic pipe and fittings are by far the most popular for use in constructing air-agitation systems. The plastics used resist plating chemicals, are easy to assemble. Molded fittings are available in all plastic materials. While most of these fittings are threaded, some manufacturers offer fittings that can be "welded" by fusing together in a solvent.

Pipe Size vs. Hole Size

The size and number of holes that should be drilled in a pipe to release air in such a manner as to produce the most effective agitation depends upon the size of pipe being used. Rule of thumb: inside effective cross-sectional area* of the pipe should be at least one and one-half times (preferably twice) the total area of all the holes drilled. Failure to observe this rule—drilling holes too big or drilling too many holes — results in too much air escaping too soon. Result: not enough agitation in the remote portions of the system.

Hole size is usually between 0.040 inch (No. 60 drill) and 0.060 inch (No. 53 drill). Larger holes allow air to escape faster, give more violent agitation; but don't forget that the more violent agitation increases the bus-bar-cleaning problem because more spray is produced over the tank.

Location of Holes

The most obvious way to drill the holes is in a single row along the top of the pipe. But this isn't the best way. When a pipe is installed with a single row of holes pointing upward, the effective cross sectional area is drastically reduced. Reason: as the column of air is forced down the riser and reaches the horizontal section of the pipe, it will form a finger-shaped pocket of air across the top of the horizontal section (Fig. 1). Once this pocket is formed, and the air has reached all of the holes, no more liquid can escape.

Several other methods of placing holes can be used to correct this situation. The simplest way is to

*Effective cross sectional area of a pipe is the cross-sectional area of the space in the pipe not occupied by liquid during operation of the system—the area of the air bubble that forms as air is forced through the pipe.

drill holes (the same size as those in the top of the pipe) along the bottom of the pipe, at three-foot intervals. These holes permit all of the liquid to be forced out, even though the air has reached all of the holes along the top of the pipe. Effective cross sectional area then equals the total inside cross-sectional area of the pipe. Some air escapes from the holes in the bottom, but it is a small amount compared to that escaping from the top holes.

Another highly satisfactory system is to drill two rows of holes at a 90-degree angle to one another. The holes in each row are two inches apart. They are staggered so that there is one hole for each inch of pipe. This pipe is installed with the holes pointing downward at a 45-degree angle from the vertical. No agitation appears until the solution has been forced out the holes by a uniformly shaped air bubble in the pipe. This bubble virtually fills the pipe. Again the effective cross-sectional area is equal to the total area.

Arrangement of Pipe

The most important objective to keep in mind when arranging agitation pipes in a plating tank is that when you have them installed, they must provide *uniform* agitation for the entire area between the anodes and the cathodes.

This requirement for uniform agitation can be met in several ways. Some companies prefer grid-type systems with a riser at one end; others prefer individual L- or H-shaped arrangements, with risers between each anode and cathode. All pipes are then connected to a header or manifold above the rear of the tank. The number of risers on a grid-type system is not too important *provided* the proper ratio is maintained between the cross-sectional area of the pipe and the total area of the holes.

There are advantages and disadvantages for both the grid arrangement and installations of individual pipes between each anode-cathode combination. The grid system does not require a header or manifold pipe as does the individual section system; but the grid system cannot be repaired or cleaned without removing the entire system. The individual sections, however, can be removed one at a time without dis-

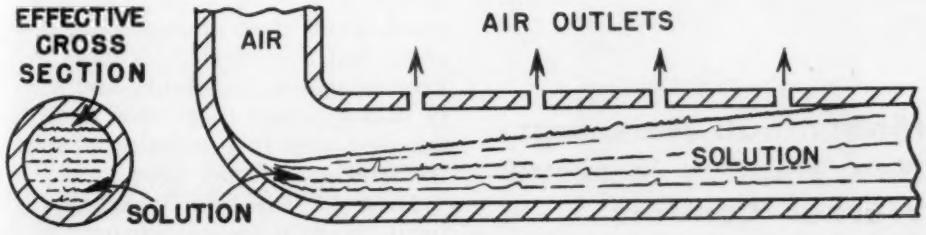
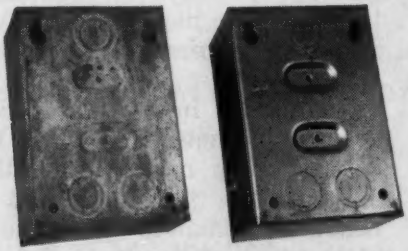


Fig. 1—Sketch shows effect of installing agitation pipe with single row of holes pointing upward. As soon as air reaches last hole on right, no more liquid can escape. Once this "pocket" is formed, it determines effective cross-sectional area, which is much less in this case than if all the liquid were able to escape. Cross-sectional area is very important.

The BEST Finishes START with STANTITE Primers



Stantite Spraying Primer was used on switch box at right only. Both boxes were sprayed with aluminum synthetic and were exposed to salt spray test for 500 hours. The results speak for themselves.

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turbing the other rods, so that production can continue in other sections of the tank.

No matter what system is used, the pipes must be absolutely horizontal if uniform agitation is to be attained.

Reprinted from Prenco Plating Bulletin No. 3, published by the Process Engineering Co., Chicago, Illinois.

★ ★ ★

Molten Salt Finishing: New Heaters Improve Worker Comfort

Electric heaters submerged in a molten salt bath at Chain Belt Company's Springfield, Mass., plant have eliminated an uncomfortable hot spot in the plant and reduced maintenance costs at the same time.

Chain Belt uses the molten salt bath to apply a blue finish (similar to a gun-barrel blue) on parts for roller chain.

The bath is operated at temperatures up to 700 deg. F., depending upon the type of parts being processed. Parts pass through on a conveyor belt that discharges them into two successive rinse tanks and finally into a basket that takes them to the next step in processing. Capacity: 800 pounds per hour.

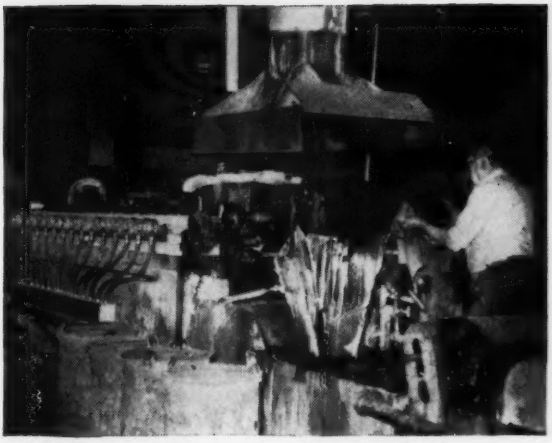
Heat for the bath was supplied until recently by gas burners in a large refractory brick chamber beneath the tank. This system had two drawbacks: heat blasting out around the tank made the immedi-

ate vicinity of the tank an uncomfortable place to work; and both the firebricks and tanks had to be replaced periodically, as they burned out.

Both of these disadvantages have been eliminated by the newly installed electric heaters, which are immersed in the salt bath.

The electric heat source is 15 over-the-side, L-shaped Chromalox stainless steel sheathed heaters, type TBL-6001A, 480 volts, six kw. each, equally spaced over the length of the tank.

Heater operation is initiated each working day at 3:00 A.M. by a time clock. By 5:30 A.M. the salt bath has reached 300 deg. F. Operation is then automatically placed under the control of a thermostat, which has been preset the night before to allow reaching maximum temperature of approximately 700 deg. F.



Molten salt bath at Chain Belt Co. is now heated by immersed electric heaters. This method of heating has reduced worker discomfort in vicinity of tank, eliminated two substantial maintenance costs. (Photo courtesy Edwin L. Wiegand Co., Pittsburgh 8, Pa.)

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stages: when temperature drops below the preset temperature, six of the 15 heaters are turned on; a drop of 21 degrees below set temperature brings on the remaining nine heaters. On temperature rise the action is reversed.

This arrangement provides more uniform temperature control and better performance with broader load distribution.

★ ★ ★

Plastic Coating Simplifies Insulating Procedure

A California manufacturer has simplified the process for insulating its pancake armatures by substituting a fusion-bonded epoxy resin finish for the coating process used previously. This one-step process replaces the seven-step procedure employed previously, produces fewer rejects.

Pancake armature on the left was clad with epoxy resin by the Whirlclad process. Fusion-bonding process produces coating with excellent uniformity. (Photograph courtesy National Polymer Corporation, Inc., Reading, Pa.)

The pancake armature is used in a series field motor assembly produced by Whittaker Controls Division of Telecomputing Corporation at the company's Lynwood, California plant.

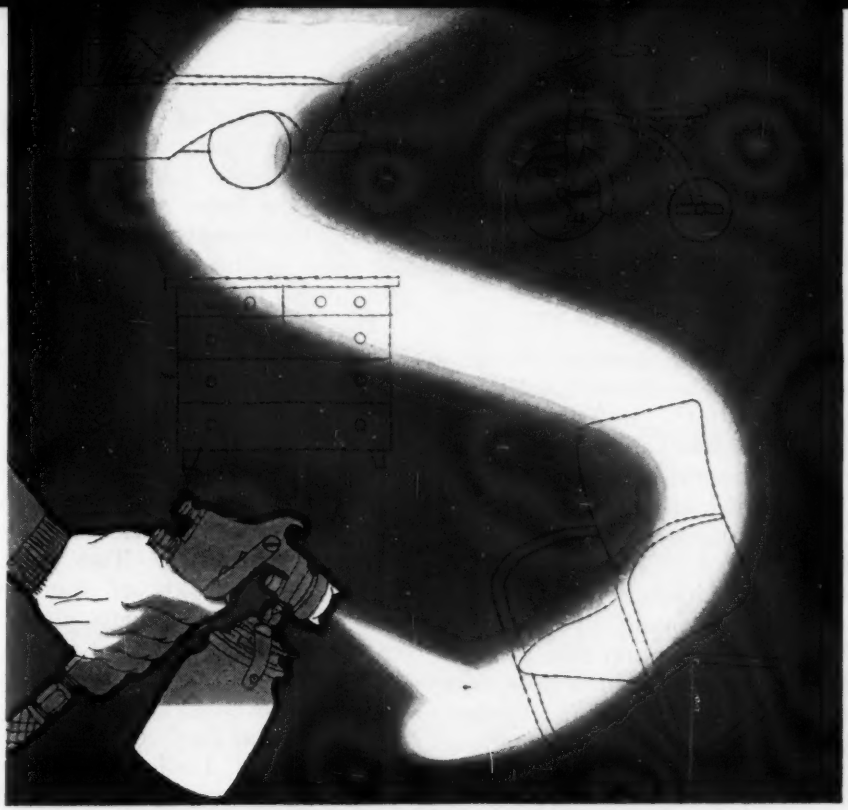
The Polymer Corporation, at Santa Ana, Calif., applies the fusion bond finish by the Whirlclad process, a method of coating metals with plastics. In this process the armatures are preheated and dipped into a fluidized bed of dry epoxy powders. The powders bond by fusion onto the surface to form the finish.

With proper surface preparation of the part and a predetermined operational and curing cycle, the Corvel epoxy powders form a continuous film 0.007 inch thick over the surface of the preheated armature. This finish covers sharp edges and projections. Uniformity of coverage is the key to obtaining the required insulating quality.

The epoxy coating formed has a dielectric strength of 1100 volts per mil thickness. The seven-mil cladding has a dielectric strength of approximately 7700 volts.

Coating quality is good enough that 100 per cent testing and inspection has been replaced by checking only 10 per cent of the parts for dielectric strength.

This method of cladding metals in a fluidized bed of powders was developed and patented in Germany. Polymer Processes, Inc., Reading, Pa., has exclusive patent and licensing rights in the United States and Canada. The Polymer Corporation at Santa Ana, Calif., is one of the licensees.



EAK . . . a high-boiling solvent with important characteristics

In surface coating formulations, ethyl amyl ketone (EAK) teams up with low-boiling MEK and medium-boiling MIBK to provide better flow and gloss and aid in eliminating dry overspray.

EAK's slow evaporation rate in surface coating formulations contributes to excellent flow-out, helps minimize pinholing and bubbling in the film. It also possesses excellent flush resistance, good diluent tolerance and high solvency.

EAK is an important component of thinners for various types of coatings—automotive refinishing lacquers, silk-screen printing lacquers and multi-color lacquers, for example. Cellulose esters, vinyl polymers and most other synthetic and natural resins are soluble in EAK.

Because of its interesting chemical structure, EAK is also proving itself to be a valuable intermediate.

Call your Shell Chemical representative now. He'll be glad to discuss your specific solvent needs with you. And write for ORGANIC CHEMICALS, a catalog of Shell solvents, resins and intermediates.

SHELL CHEMICAL CORPORATION

CHEMICAL SALES DIVISION

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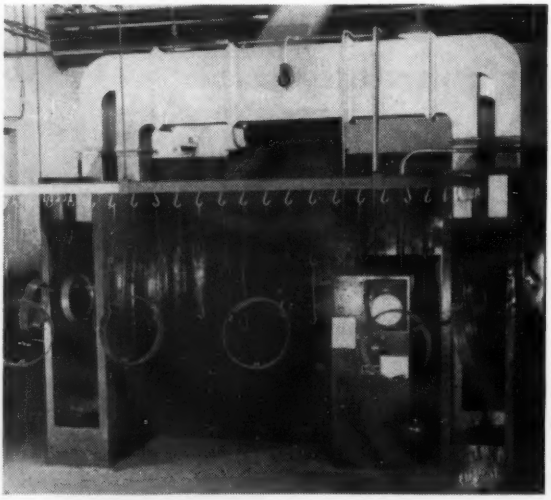
Multi-Pass Oven Improves Productivity, Takes Little Space

By **A. G. TRIVISON**
Manager of Industrial Oven Sales
The W. W. Sly Manufacturing Co.

A paint finishing system recently installed by The American-Standard Corporation's Buffalo, N. Y. Stamping Plant bakes finishes on steel parts ranging from cylindrical to pan-shaped items at a rate of 10,000 pounds per hour. The oven was designed to fit into a limited area and tie in efficiently to material flow in the plant.

The high production rate in such a small area (the oven is 39½ feet long, 15½ feet wide and 9½ feet high) is accomplished by installing the overhead conveyor so that it makes a series of parallel passes through the oven.



Painted parts to be baked enter the Sly oven at the right, move through a series of parallel passes and then leave the oven at the opening shown at left. (Photograph courtesy W. W. Sly Manufacturing Co., Cleveland, Ohio)

The conveyor carries the work through the oven at a rate of 15 feet per minute. It enters and leaves the oven at the same end. A complete cycle takes 10 minutes.

The oven normally operates at a temperature of 300 deg. F., but it will provide a wide range of temperatures and baking cycles. It is basically an enclosure made of three-inch-thick insulated panels. Heat seals for the oven are five-foot-long sheet metal vestibules at the oven exit and entry. Two exhaust ducts on each side of the entry vestibule remove solvents given off by the products entering the oven and keep the fume concentration within the oven at a safe level.

A direct-gas-fired air heater with a capacity of 1,500,000 b.t.u. per hour and equipped with an 18,000-c.f.m. fan supplies heated air to four air ducts located on the oven floor, directly in line with the four conveyor passes. Heated air is directed upward and over the work.

Recirculation ducts on the oven ceiling pick up the air once it has passed the work and return it to the heater. Continual re-use of the air in this manner helps to reduce fuel costs.

An exhaust fan on the oven roof removes a portion of the oven atmosphere, ensures that moisture and products of combustion are taken out quickly.

Electronic safety controls are a part of the heater equipment. They protect the system against fuel, power or mechanical failure. A "high-limit" controller prevents exceeding safe temperatures.

WATER WHITE LACQUER

Daconite 5600 Water White Lacquer saves time and money on the production line, makes your product sell faster in the market.

A ready to spray clear lacquer, (Alkyd fortified) Daconite 5600 is recommended for use over blond stains, light fillers, light natural woods, Masonite and metal.

Daconite 5600 has excellent cold check resistance and produces a finish of exceptional paleness and color retention quality that will not ring from alcohol, water or hot dishes. It is highly resistant to scuffing and scratching.

5600 has been fully tested under actual market conditions. It has all the time and money saving features that assures you of production line economy as well as superior finished results.

Write for specifications sheet and testing samples on your letterhead.

DAY CO FINISHES DAY SINCE 1906

JAMES B. DAY & COMPANY

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fine production finishes for industry since 1906.

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A. E. S. Convention Papers

Speakers and subjects for Fifth International Conference on Electrodeposition and Metal Finishing

June 15-19, 1959 **Detroit, Michigan**

COUNTRY	SPEAKER	SUBJECT
Canada	Dr. M. H. Jones, Ontario Research Foundation	*Influence of the Basis Metal*
England	A. W. Brace, Aluminium Laboratories, Ltd.	*European Bright Anodizing Practice*
	Dr. J. Edwards, The British Non-Ferrous Metals Research Ass'n.	*Use of the Sulphur Dioxide Test*
	Dr. R. A. F. Hammond, past president, Institute of Metal Finishing	*Shot Peening and Baking Effect on Chromium Plated Steels*
	A. A. B. Harvey,	*A Critical Study of Accelerated Weathering of Organic Finishes*
	A. D. Hughes,	*Grain Size Control in Electroforming*
	U. R. Marx,	*Pyrophosphate Zinc Plating*
	Dr. W. Stein and D. H. Lloyd, all of Wilmot Breeden, Ltd.	*Comparison of British and U. S. Methods in Organic Finishing*
	A. W. Wallbank, Ionic Plating Company, Ltd.	*Barrel Plating—Protection of Thread Diameters*
	Dr. S. Wernick, secretary, Institute of Metal Finishing	*Problems in Application of Pre-Coated Steel*
France	Pierre A. Jacquet, Societe Jacquet-Hispano Suiza	*Electropolishing in Metallography*
	Robert Mondon, Societe Jacquet-Hispano Suiza	*Status of Electro-polishing in Europe*

Walter L. Pinner
Conference Chairman

Myron B. Diggin
Co-Chairman

Dr. Walter R. Meyer
Co-Chairman

Dr. R. B. Saltonstall
Co-Chairman

COUNTRY	SPEAKER	SUBJECT
Germany	H. Guinsberg, Institut Fur Werkstoffkunde	*Developments in Coating Aluminum and Alloys*
	H. Spahn	*Chemical Polishing*
Holland	P. Baeyens	*Passivation of Metals*
India	T. L. Rama Char, Indian Institute of Science	*Pyrophosphate Systems*
Italy	F. Sacchi	*Accelerated and Exposure Tests on Nickel-Chromium Plated Aluminum*
Switzerland	J. Zucker	*Ultrasonic Cleaning*
United States	R. F. Ayres, Oakite Products, Inc.	*Conversion Coatings*
	D. M. Bigge, Chrysler Corp.	*Experiences with the Use of the Corrodkote Test*
	Dr .William Blum, A.E.S. Scientific Achievement Award Winner	*The William Blum Lecture*
	R. A. Boller, Archer-Daniels-Midland Co.	*Water Soluble and Water Reducible Coatings for Metals*
	E. R. Breining, The Commonwealth Engineering Co. of Ohio	*Gas Plating*
	Dr. Henry Brown, Udylite Corp.	*Corrosion Studies*
	Dr. Charles L. Faust, Battelle Memorial Institute	*Finishing Zinc Die Castings*

A. E. S. Convention Papers (continued) . . .

COUNTRY	SPEAKER	SUBJECT
United States	Dr. R. C. Gibson, Parker Rust Proof Co.	*Surface Preparation for Organic Finishes*
	Dr. A. K. Graham, Graham, Savage & Associates	*Black Chromium Plating*
	H. W. Howard, Shell Chemical Corp.	*Epoxy Resins*
	W. P. Innes, MacDermid Inc.	*Purification of Cyanide Solutions*
	F. L. LaQue, International Nickel Co.	*Importance of Corrosion Testing*
	Dr. Henry Leidheiser, Jr., Virginia Institute for Scientific Research	*Microthrowing Power*
	M. D. Levin, General Electric Co.	*Statistical Design and Analysis in the Application of Plastisols*
	Dr. F. A. Lowenheim, Metal & Thermit Corp.	*Bronze as a Protective Undercoat for Decorative Finishes*
	W. H. McKnight, Bakelite Corp.	*Vinyl Coatings for Metals*
	Dr. Abraham Max, RCA Victor-Record Div.	*Impurities in Plating Solutions*
	R. Scott Modjeska, Scientific Control Labs, Inc.	*Plated Metals for Use in Selective Heat Treating*
	C. F. Nixon, General Motors Corp.	*Experiences with the Use of the Accelerated Acetic Acid Salt Spray Test*
	Myron Perez, Metal & Thermit Corp.	*Vinyl Dispersion Coatings*
	Dr. H. J. Read, The Pennsylvania State University	*Studies Related to Ductility*
	E. Saubestre, Sylvania Electric Products, Inc.	*To be announced*
	Dr. S. Sterman, Union Carbide Corp.	*Silicone Metal Protectants*
	R. V. Vanden Berg, Aluminum Company of America	*Finishing of Aluminum*
	R. A. Williams, Rinshed-Mason Co.	*Organic Finishing*

INFRA-RED fostoria SYSTEM

radiant heating news

to help manufacturers improve production operations

How to choose the right INFRARED for radiant ovens...

Consider, first of all, that processors using infrared generally find *electrical* radiant heating superior. Here are three good reasons:

1. *Greater Control.* Heat is directed more accurately to product at variable rates, and easily controlled.
2. *Cleaner.* No products of combustion exist in electric infrared ovens.
3. *Reliable supply.* Electricity is the modern fuel always available in large quantities.

Source factors to consider: Of all electric infrared sources, only these are proved practical for general industrial use in radiant ovens:

1. Clear glass lamps (G-30 type)
2. Quartz lamps (tubular shaped)
3. Quartz tubes (tubular)
4. Metal sheathed rods (tubular)

Each of these heat sources has distinct characteristics. All have advantages and disadvantages under certain conditions, as listed in chart below. A choice should be made only after evaluating each according to the following factors:

• Heat output (intensity)

Determine intensity (or heat rating) you require—the amount of heat in watts or BTU available per square inch or square foot. No need to select high-watt rated sources if not needed.

• Efficiency

Electric infrared oven users obtain a reliable rating in watts or BTU delivered to heat source at all times. *Radiant efficiency* of electric infrared sources vary according to their temperature. The higher this temperature, the greater is radiant efficiency. Sources that operate at lower temperature give off more convection heat, less radiation. Efficiency of an electric infrared oven also depends on proper selection of *reflecting surface, contour of reflector* and *oven design.*

• Speed of response

How quickly oven reaches operating temperature is important in many applications—and so is the speed with which oven cools down. If "override" temperatures present a serious problem, heat sources with instant response are preferred.

• Cost factor

Costs vary among infrared sources, so cost differences can be justified only after evaluating job requirements. Low-priced infrared lamps can be used if they do the job. Requirements for faster heating, for higher intensity, for extra ruggedness, and other factors usually dictate the choice of heat sources. It's almost automatic.

We will gladly advise you. You will get unbiased counsel when we help you select the right heat source. No other infrared supplier can offer you *all* practical sources—and none provide such complete service *before and after the sale.* Proper design, skilled installation and continuous efficient performance with greatest economy are assured.

Send for free 20-page book, "Radiant Heat—Applications Unlimited." Write to Department 1022.

Comparison Of Infrared Heating Sources

CHARACTERISTIC	QUARTZ LAMP	METAL ROD	QUARTZ TUBE	G-30 CLEAR LAMP
Potential Heat Output	Very High	High	Low to Medium	Low to Medium
Splash Resistance	Very Good	Very Good	Very Good	Low
Impact Resistance	Low	High	Low	Low
Color Sensitivity	Low	Very Low	Very Low	Low
Life Expectancy	Very Good	Very Good	Good	Very Good
Brightness (visible light)	High	Low	Low	Medium
Response (heat up, cool down)	Quick	Slow	Medium Slow	Quick
Cost Factor	see cost factor paragraph above.			

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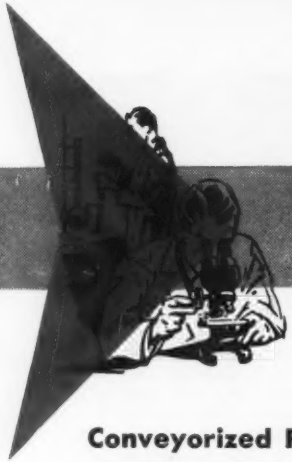

finishing clinic

Suggested solutions to problems submitted by readers. Send your problem to our Editorial Staff. There is no charge.

Conveyorized Finishing System

Question: *We are using a black enamel finish on the bond boxes which go inside a bank's safe deposit boxes. These are made of 28-gauge cold-rolled sheets, oiled to prevent rusting. We have been cleaning these with mineral solvent and spray painting them by hand.*

We know there must be a better, faster and more satisfactory way of getting this job done. We would appreciate any advice or comments you can give us in regard to setting up a better finishing system.

We would also like to know if there is some such finishing system that we might visit in our area and would also appreciate any advice as to manufacturers of products necessary to make up satisfactory systems.

E. W. W.

Answer: With this letter we are sending you a reprint of the article "A Survey of Paint Application Methods," which describes the many ways of applying paint.

Perhaps your products could be painted by dipping or flow coating. The size of your products and the desired hourly production volume will determine what painting system is the more economical.

A number of companies are in the business of designing, engineering, and installing finishing systems, and their engineers can give you specific recommendations with regard to your problem. These companies are listed on pages 84 to 87 of the PRODUCTS FINISHING DIRECTORY.

There are several companies in your area where conveyorized finishing systems are being used. The builders of finishing systems can, no doubt, recommend many more.

★ ★ ★

Nickel and Chrome Plating Monel Metal Parts

Question: *We would appreciate some information on nickel and chrome plating monel metal parts. We are a manufacturer of surgical instruments and have experienced some difficulty in properly nickel and chrome plating monel metal items. Any information you might have available to assist us would be greatly appreciated.*

F. G. T.

Answer: It is understandable that you are having difficulty with this process since monel is, of course, a nickel alloy and it is a little difficult to secure good adhesion of one nickel plate over another nickel plate or a nickel alloy by conventional methods.

There are, of course, processes by which you can accomplish the nickel plating of monel metal parts. We are referring you to some sources from whom information on this process may be obtained.

Molded Plastic Tanks

Question: *We are very anxious to learn of a source where we can obtain molded plastic tanks (preferably fibre glass) approximately 48 inches by 24 inches by 30 inches.*

H. W.

Answer: Companies who supply plastic tanks are listed in the PRODUCTS FINISHING DIRECTORY on pages 183, 184, 185.

★ ★ ★

Barrel Finishing

Question: *Please send us copies of articles on barrel finishing which you have published during the past few years.*

W. F. H.

Answer: We are enclosing copies of articles which we have published in PRODUCTS FINISHING on the subject of barrel finishing. They are: "Possibilities of Barrel Finishing Processes;" "A Better Finish for Compressor Valves;" "Burr Removal by Barrel Finishing;" "Barrel Finishing Principles: Historical Outline;" "Effect of Media Size and Time Cycle on Barrel Finishing Results;" "Barrel Finishing Principles — Selecting the 'Best' Burnishing Barrel;" "Barrel Finishing — The Use of a Slurry in Barrel Finishing;" "Tiny Electronic Parts Tumbled to Precision Finishes;" "Barrel Tumbling: How to Get Best Results;" "Rifle Maker Scores Direct Hit on Costs."

★ ★ ★

Deburring of Subminiature Precision Instrument Parts

Question: *"Deburring" and "manicuring" after machining of subminiature precision instrument parts is one of our major problems.*

Would you please tell us what other companies have done with regard to this problem?

E. J. H.

Answer: With this letter we are sending a reprint of the article "Tiny Electronic Parts Tumbled to Precision Finishes." This article describes the precision tumbling of small parts as carried out in one of the plants of a company who has had success with this process.

For additional information on the subject, we suggest that you write the manufacturers listed in the PRODUCTS FINISHING DIRECTORY under the heading "Barrel Finishing Equipment," beginning on page 30.

★ ★ ★

"Sputter Plating"

Question: *We are interested in the process known as "sputter plating" or "sputtering." We would appreciate it if you would tell us where we could get information on the process, or the coating produced, and on the manufacturers of the equipment used.*

W. B. H.

Answer: We presume that the process you have in mind is somewhat similar to vacuum metalizing. The companies to whom we are referring you can provide information which will be useful to you.

★ ★ ★

Removal of Light Oil and Tarnish From Brass Assemblies

Question: *We have a number of pump assemblies made of brass with tin solder joints. We would like to clean light oil and tarnish from these assemblies with an alkaline cleaner. Either an electrolytic or soak type cleaner is suitable.*

P. F. W.

Answer: The best solution to your problem is that you contact the manufacturers of cleaners listed in the PRODUCTS FINISHING DIRECTORY on pages 50 through 56. These companies can provide you with a cleaner specifically for your purpose, or a cleaner and acid dip sequence which may be needed to clean the several metals involved. They can also recommend either an electrolytic or soak type cleaner.

Mass Production Precision Finishing of Miniature Parts

Almost anything that moves today has bearings. Ball bearings go into everything from servo motors to dentists' drills. And invisible as they are in most assemblies, they are nonetheless vital. Failure can bring the whole mechanism to a literally grinding halt. That's why bearing makers are so fussy about finishing. A tiny burr or a machining line could cause eventual failure.

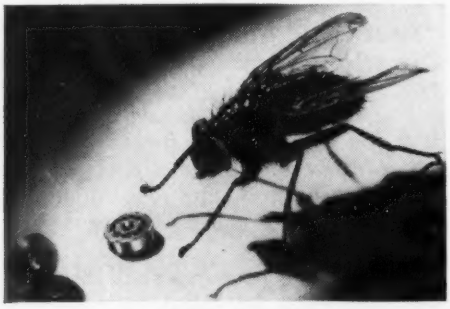

Fig. 1—Minute size of the tiny ball bearings is dramatically illustrated by this comparison photo of an ordinary house fly beside the finished products. Weigh out a pound of them and you'd have 22,700 bearings.

Fig. 2—Any bearing smaller than 3/8 inch in diameter is classified as "miniature." The M.P.B. line includes more than 500 types and sizes. Most popular sizes have 1/4 or 5/16 inch outside diameter.

★ ★ ★

This problem gets even more complicated when the bearings become smaller — the miniature ball bearing assembly (Figs. 1, 2). But tiny bearing races—some so small that 500 will fit in a thimble—are not nearly as hard to finish as they once were.

Hand finishing used to be the only way to remove the speck-size burrs left on the inside of bearing races during initial cutting operations. Barrel finishing is now displacing this laborious task. Improved machines and techniques are responsible for the welcome change in procedure.

One company that is now successfully barrel finishing miniature ball bearing races is Miniature Precision Bearings, Inc., Keene, N. H. Barrel finishing methods are used to improve surface finish on inner and outer bearing races and to remove burrs, sharp edges and machining lines.

Production usually runs from 1,000 to 4,000 parts per load, and occasionally at from 5,000 to 15,000 parts per load. Most parts are loaded twice during the production cycle and some are loaded four and five times, depending on the machining and grinding required. All told, millions of parts a year are barrel finished by barrel finishing equipment (Fig. 3) and methods.

Final inspection of the tiny parts requires that external dimensions

THERE'S A BETTER WAY...**to protect your products!**

Come rain or shine, Glidden finishes provide real umbrella protection—against humidity, corrosion, chipping, fading, staining and all other enemies of product finishes.

Glidden finishes are custom-formulated to insure the special protection your particular products need. What's more, Glidden Technical Service is the most thorough and practical in the industry, including complete analyses of all finishing problems *in your plant* by experienced technicians.

You need both—Glidden Finishes plus Glidden Technical Service—for *real umbrella protection,* whatever your product, process or problem.

QUALITY Glidden PRODUCTS

FINISHES FOR EVERY PRODUCT

The Glidden Company
INDUSTRIAL PAINT DIVISION
900 Union Commerce Bldg., Cleveland 14, Ohio

"THE GLIDDEN UMBRELLA" of protection combines comprehensive technical service and custom-formulation of product finishes for all industry.

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conform to ABEC 5 and 7 tolerances. Periodic inspection during the barrel finishing cycle allows the operator to determine progress. He is aided by a micrometer and a 30-power microscope.

Almco, Queen Products, Inc., Albert Lea, Minn., supplied barrel finishing equipment required to do the job and helped to determine the proper combination of media, compound, water, time and other variables that enter the process.

Fig. 3—Twin-barrel Almco Supersheen Model DBO1-A used by Miniature Precision Bearings, Inc., to process tiny bearing assemblies. (Photos courtesy Almco, Queen Products, Inc.)

Special Pumps Successfully Handle Acids for Chem-Milling

Chem-Milling is a process patented by North American Aviation Company in 1956. It is used to etch away excess metal on difficult-to-reach spots without reducing part strength. North American regularly processes aluminum tube, sheet and forgings by the Chem-Mill method.

The company's Columbus, Ohio, plant is one of several where the Chem-Mill process etches away aluminum on aircraft parts such as tapered fuselage skins, access doors, duct skins, and the leading edges of wings and stabilizers. These components are used in building the FJ-4B Fury Jet for the Navy; a high-performance attack airplane called the A3J; the T2J jet trainer; and other aircraft.

Pumping the acids (nitric, hydrochloric, sulfuric and hydrofluoric) from carboys into the etching tanks is a rough assignment for a pump. To do this job, North American installed Vanton sealless plastic pumps. Acids are pumped in concentrated solution, direct from the carboys. North American reports that the pumps are doing a satisfactory job, and that overhaul of the pumps, when necessary, is quickly accomplished.

The Vanton pumps in this installation are built for handling corrosives. Shaft seals and stuffing boxes—two of the primary sources of trouble in pumping corrosives—are eliminated by the design of this pump. Instead of the conventional

Controlled Grain Size with American Extruded Silver Anodes

These scientifically shaped anodes retain 80% of original active surface area after 85% by weight has been plated off!

Costs are lowered by prolonged anode life, minimized polarization and less silver scrap to be refined. In addition, the APW Extrusion Process controls grain size within definite ideal limits so that corrosion is smooth and uniform. Electro-deposits are consistently smooth. Shedding is virtually eliminated. Rejects are a comparative rarity!

We are anxious that the silver you buy in anodes is used most efficiently and economically. Special anode shapes will be engineered to meet your particular plating bath conditions. Call or write for a representative. We'll be glad to assist with your plating problems.

AMERICAN PLATINUM
& SILVER DIVISION
231 New Jersey Railroad Ave.
Newark, New Jersey

RHODIUM PLATING for greater protection . . . greater wear

Rhodium is one of the group of platinum metals. It has a hard, brilliant white, non-tarnishable, highly reflective surface. It is extremely resistant to corrosive conditions. These properties make rhodium particularly valuable in many decorative, industrial, electrical and electronic applications. In general rhodium adds lustre to jewelry and other decorative objects. It protects electrical contacts and shows negligible wear when subjected to constant abrasion of moving parts. If you have a particular plating problem where utmost protection is needed, investigate rhodium.

ATOMEX immersion gold solution

A fast, economical plating process for depositing a thin layer of 24 Karat Gold on a wide variety of industrial items. By means of a simple bath a dense coating can be achieved with 30 per cent less gold. All parts of the object receive a uniform deposit. All the gold in the bath is used and the spent solution is discarded. Analytical Control is not necessary. Atomex is a useful addition to any plating shop.

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Newark, New Jersey

AMERICAN PLATINUM & SILVER DIVISION

ENGELHARD INDUSTRIES, INC.
113 ASTOR STREET
NEWARK 2, NEW JERSEY

CHEMICAL DIVISION

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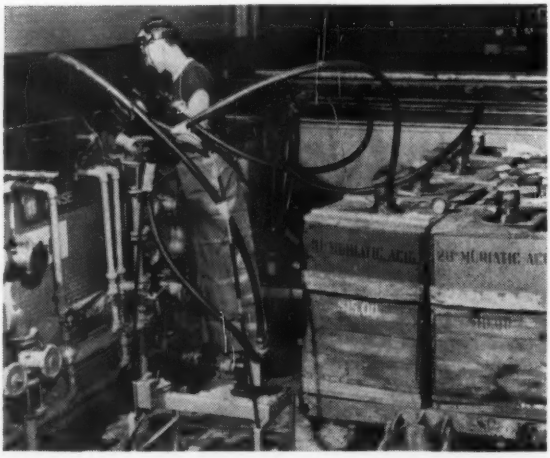
arrangement, a tubular liner with flanges clamped to the sides of the molded plastic pump housing by end plates traps fluid between the outside surface of the liner and the



Specially built pump replenishes etch tanks with hydrochloric acid used for Chem-Milling at North American Aircraft's Columbus, Ohio, plant. (Photograph courtesy Vanton Pump & Equipment Company, Hillside, New Jersey.)

inside of the pump housing. Between these surfaces a squeegee action is created by a rotor mounted on an eccentric shaft, which continuously rolls within the liner.

★ ★ ★

Gold in the Sky

The interiors of many of the new luxury airliner DC8's made by Douglas Aircraft Company will be decorated with a pink gold color chosen by designers Raymond Loewy and Associates. The gold anodized aluminum is being developed and produced by Anadite, Inc. of South Gate, California.

Besides having an attractive finish, each gold anodized aluminum part will be protected against corrosion. Parts to be processed are ash trays, panels, seat trim and all other aluminum hardware parts of the interior. A battery of 18 tank solutions is required to ensure proper color control.

Coming Up: Profitable Reading

Many interesting articles are being readied for future issues of PRODUCTS FINISHING . . . articles that tell the finisher how to do his job better, how other people have improved finishing operations. Look for these and other valuable articles in coming monthly issues:

A Missile-Maker's Titanium Plating Process
Process details on a method of producing adherent plated coatings that make strategic titanium even more valuable . . .

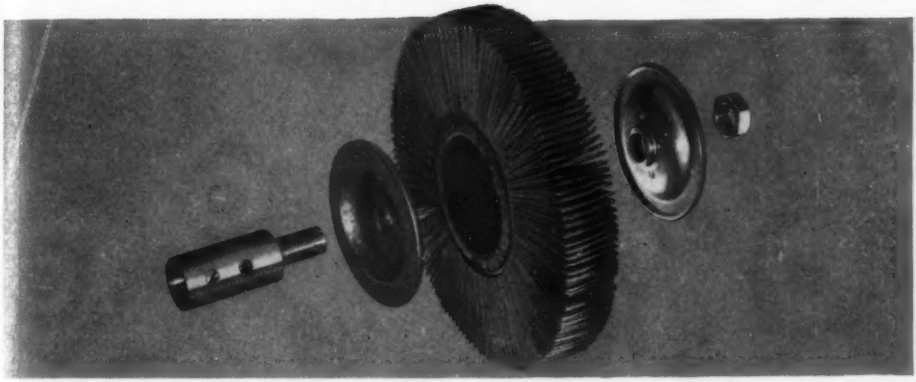
Improving Your Wrinkle Painting
Specific suggestions for controlling baking cycles and methods of application so as to produce wrinkle finishes of uniform color and texture . . .

A Review of Organic Coatings
A survey of available organic coatings that are in common use throughout industry, with a discussion of the advantages and disadvantages of each . . .

Watch for these and other useful articles in PRODUCTS FINISHING, the Finishing Industry's most informative publication!

GRIND-O-FLEX

"the **FLEXIBLE** coated abrasive wheel"



fine grits for
POLISHING • BUFFING
SATIN FINISHING

coarse grits for
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CLEANING & CHAMFERING

★ Sizes from 2" to 16" Diameters. ★ Sets up immediately on any light spindle or heavy duty polishing jack. ★ Smaller Sizes are just right for portable use. ★ Absolute uniformity of finish for entire wheel life. ★ Requires no skill or experience to produce a perfect finish.

★ May be mounted in tandem for finishing sheets up to 60" wide.

For various grits and sizes available see your distributor, or write —

merit Products, Inc.

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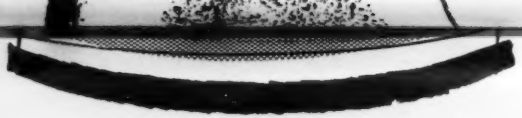
Sanding time cut 38% with LOWE VINOC

Another example of the kind of cost-saving ideas you can get from an experienced Lowe Brothers finishing engineer. Here's the story:

"I suggested Lowe Vinoc when the plant superintendent complained about the sanding time required with another

Let a Lowe Brothers finishing engineer help *you* find ways to reduce costs. He knows finishes *and* methods — and he'll



complained about the sanding time required with another

Let a Lowe Brothers finishing engineer help *you* find ways to reduce costs. He knows finishes *and* methods — and he'll gladly make a "flow-chart" analysis of your finishing system if you'll send the coupon. No obligation, of course.

LOWE BROTHERS
INDUSTRIAL FINISHES

QUALITY UNSURPASSED SINCE 1870

Style-tested paints for Home and Industry

REPRESENTATIVES IN: Chicago, Ill. Boston, Mass. • Jersey City, N. J. Cleveland, Ohio • Pittsburgh, Pa. Rochester, N. Y. • Dayton, Ohio Columbus, Ohio • Milwaukee, Wis. Indianapolis, Ind. • Cincinnati, Ohio Detroit, Mich. • Springfield, Mass. Philadelphia, Pa.

The Lowe Brothers Company PF-10
Dayton 2, Ohio

☐ Please have my nearest Lowe Brothers Finishing Engineer call on me as soon as possible.

NAME_____

TITLE_____

FIRM NAME_____

ADDRESS_____

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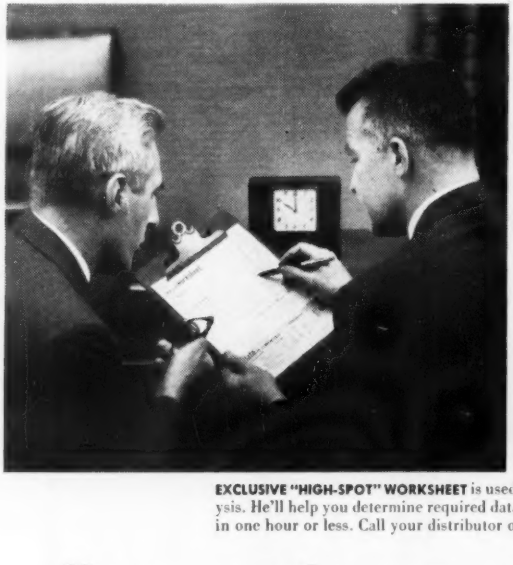
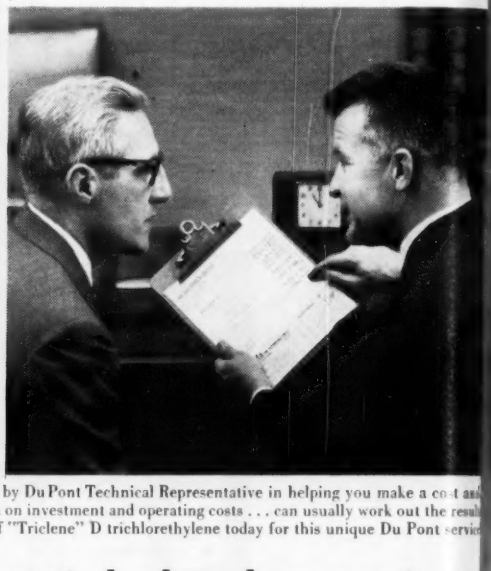
For more data circle 346 on Postpaid Card

DU PONT REG. U.S. PAT. OFF. *PRODUCT NEWS*





EXCLUSIVE "HIGH-SPOT" WORKSHEET is used by Du Pont Technical Representative in helping you make a cost analysis. He'll help you determine required data on investment and operating costs . . . can usually work out the results in one hour or less. Call your distributor of "Triclene" D trichlorethylene today for this unique Du Pont service.

Now . . . analyze your metal cleaning costs in one hour or less!

Exclusive Du Pont "High-Spot" cost analysis gives you facts you need to meet competition and rising costs

With Du Pont's new "High-Spot" cost analysis method, you'll be able to price the cleaning of new parts more accurately . . . find out where your present metal cleaning costs are out of line—see how you can clean metals more profitably. This unique method was developed by Du Pont to give you a quick, reliable way to pinpoint your *complete* costs of cleaning—not just the obvious (and often misleading) costs of the solvents or chemicals alone.

The need for accurate analysis

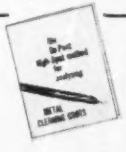
Competition and rising costs make it necessary for all fabricators to analyze manufacturing costs accurately. Du Pont's exclusive "High-Spot" method—a condensation of Du Pont's original, more comprehensive cost analysis—gives large, medium and small firms an easy way of getting vital answers to meet changing production demands.

In one hour or less—the answer and direction

"High-Spot" helps you make an analysis of your present cleaning costs . . . or a side-by-side comparison of competitive cleaning methods handling the same job . . . in one hour or less. With the results of the analysis, you can frequently find ways to trim out-of-line costs, or select the most efficient process if you're expanding.

Planning a new product or part?

Let a "High-Spot" cost analysis take the guesswork out of estimating that new job. As with all our Technical Services to fabricators, "High-Spot" is available through your local distributor of "Triclene" D trichlorethylene. Call him today. He'll arrange for a Du Pont Technical Representative to help you with a "High-Spot" cost analysis. It may point the way to saving thousands of dollars.



Get facts about "High-Spot" cost analysis from your Du Pont Technical Representative

This folder contains the actual form used in a "High-Spot" analysis . . . explains the method . . . lists facts needed to do an analysis. Ask your distributor of "Triclene" D to have a Du Pont Technical man explain this new Du Pont service, or check the box in the coupon at right.

FOR MODERN METAL CLEANING

New Du Pont report tells why "Perclene" perchlorethylene is the ideal solvent for cold cleaning

You'll find this authoritative Du Pont report extremely useful if you do any cold cleaning of metal parts, motors and other maintenance operations, etc. It's a factual, straightforward presentation of basic information about the properties of various solvents now used for cold cleaning.

This new Du Pont report shows why "Perclene" perchlorethylene is superior to other cold cleaning solvents in safety . . . is less expensive . . . is inherently stable and so can be repeatedly reclaimed by simple distillation. It further shows why "Perclene" cleans better in many cases because of its slower rate of evaporation.

Of particular interest to safety engineers and production supervisors are the safety advantages of "Perclene". One easy-to-read table compares the vapor concentrations of "Perclene" perchlorethylene with methyl chloroform in typical cold cleaning applications. These concentrations are expressed as percentages of Maximum Allowable Concentration (MAC) of the solvents compared and show the greater safety of "Perclene" in most cold cleaning applications.

If you have any cold cleaning operations, you'll want this new report. Ask your distributor for a copy, or mail coupon below.

Here's how you profit by buying Du Pont TRICLENE® D: *you profit because you stay in the lead!*

trichlorethylene

For over 32 years progressive fabricators have profited from Du Pont research on vapor degreasing—research aimed at developing solvents and methods that insure high-quality, low-cost cleaning. Buyers of Du Pont "Triclene" D trichlorethylene stay ahead of their competitors because they are the first to realize the cost and quality advantages of the solvent which is years ahead. In addition, they are first to enjoy the benefits of new developments from Du Pont.

Just look at the record:

1925—The first American-made trichlorethylene is produced at Du Pont's Niagara Falls plant.

1926-28—The first stabilized trichlorethylene is developed at Niagara Falls and used in the first American-built vapor degreasers.

1933-47—Du Pont trichlorethylene is used in virtually all of the vapor degreasers operating in this country!

1949—Du Pont announces a revolutionary new concept—neutral stabilization of trichlorethylene for metal degreasing.

1954—Du Pont makes still another major breakthrough in stabilization technology by introducing the new "Triclene" D—now the nationally accepted standard for superior performance in degreasing-grade trichlorethylene.

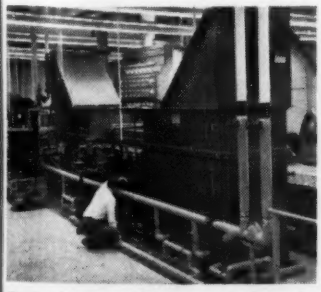
1959—Du Pont will introduce nationally two new metal finishing processes.

(1) A vapor-degreasing trichlorethylene painting process that cleans and paints metal work in a single piece of equipment.

(2) A trichlorethylene based process for "Dry" phosphatizing.

When you buy Du Pont "Triclene" D, you get not only the best degreasing solvent, backed by experienced technical service, but also the latest process-improving developments. *You profit* because you *stay in the lead!*

Your distributor of "Triclene" D trichlorethylene can supply your requirements. Just give him a call, or mail the coupon below.



Plant-scale conveyorized vapor degreaser is used to study metal cleaning problems at new Du Pont laboratory. Extensive equipment is also used to develop improved degreasing techniques.

DU PONT
REG. U. S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

☐ I'd like to know more about "High-Spot" cost analysis **No. 347**

☐ Send me report on "Perclene" for cold cleaning **No. 420**

☐ Send me booklet on Vapor Degreasing **No. 421**

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Department, PF-10
Wilmington 98, Delaware

*Name*_____ *Position*_____

*Present method of cleaning*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

For more data circle 347, 420, or 421 on Postpaid Card

New Equipment, Materials, Processes

Cleaning

Polishing

Plating

Paint Finishing

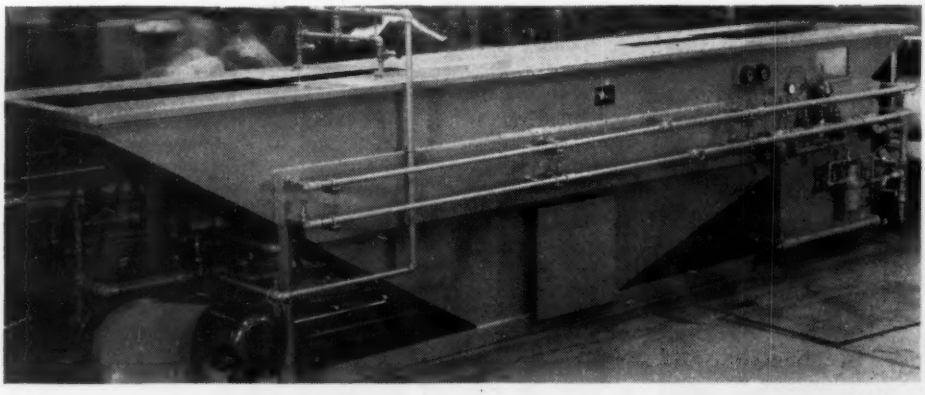
Hot-Dip Painting Process

Description: A dip-painting process in which parts that have been cleaned and preheated are dipped into a paint formulated with trichlorethylene solvent produces a film that dries immediately, will not form runs, sags, beads, or heavy areas. The solvent, trichlorethylene, evaporates instantly as the parts leave the dip tank.

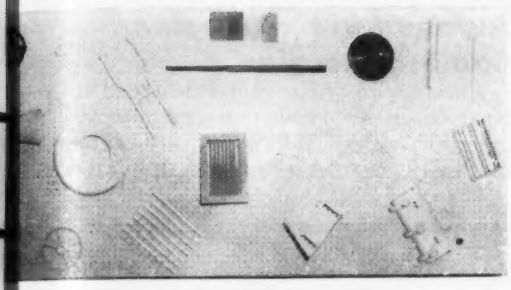
Parts may be preheated in a degreaser, washer, phosphate coating unit, or oven. The accompanying illustration shows a unit which combines a degreaser with a paint dip tank.

The shell of the dip tank is constructed similarly to a degreaser, with liquid paint below the condensing coils. A thin film of solvent vapor is maintained above the surface of the paint.

A pump circulates the paint for heating, filtering, and maintaining uniform composition and viscosity. Heat is supplied by thermostatically controlled heat exchangers operating from a steam, electric or gas source. Cross-



Typical trichlorethylene degreaser combined with hot-dip paint tank. Parts are cleaned and heated in vapor of degreaser, pass out of the degreaser into the 160-deg. F. paint. As parts leave the paint tank, solvent evaporates leaving uniform paint film.



Display board showing parts which have been painted successfully by hot dipping. David-Ludwig maintains customer service processing facilities, so that a complete study and analysis of all parts submitted for trial can be made. Small panels at top of this board are finished in various colored paints, clear finishes and metallic coatings.

rod, monorail, hydraulic-transfer, or other types of conveyors may be used to carry parts through the system.

Examples of parts which may be dip-coated by this process may be seen in the accompanying illustration. Such parts include lamp shades, lighting fixtures, reflectors, grilles, wire products, screening, signs, license plates, metal furniture, shelving, switch boxes, motors, fan parts, refrigerator parts, automotive parts, pipe and fittings, radio speakers, reels, hardware, and instrument parts.

The paint used for this process must be formulated with resins which are compatible with trichlorethylene and not thermosetting in nature. Primers and finish coats can be formulated in many colors, metallic finishes, and so on, to desired specifications of salt spray resistance, humidity resistance, water immersion resistance, hardness, air dry or bake, gloss, other properties.

The manufacturer claims several advantages for this process, including absence of fire hazard; savings in installation cost, paint, and solvent; more coverage per gallon of paint; less maintenance; and increased quality of the paint coating produced.

Manufacturer of hot-dip painting machine: David-Ludwig Co., 14290 Goddard Ave., Detroit 12, Michigan.

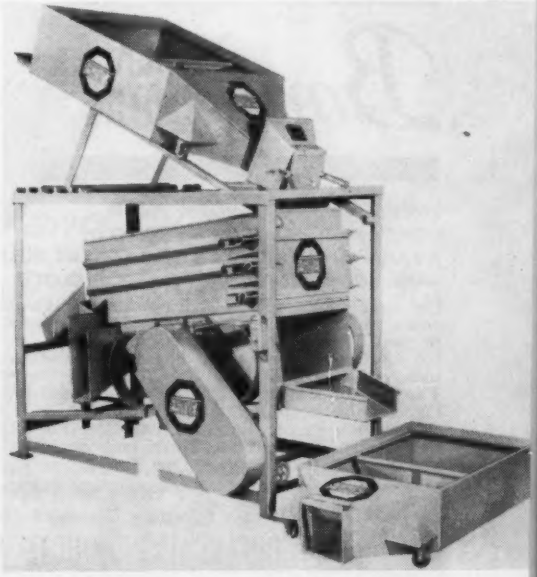
For more data circle 1 on Reader Service Card

★ ★ ★

Vibratory Media Separator

Description: A machine called the Vibra-Grader will perform up to four separations of barrel finishing media and parts simultaneously. Frequency of vibration can be controlled to suit the sizes and types of parts and media being separated. The entire operation is automatic once the machine is loaded.

Operation: Load to be separated or graded is dumped into the hoist pan which is then placed on the frame. Screen gate of the hoist pan is removed, allowing load to flow into feed chamber. Flow to the top screen is controlled by a feed gate. Speed of flow is varied to produce fastest rate of separation.



Esbec Vibra-Grader: up to four separations of parts and media at one time

Features: Vibratory mechanism used is said to prevent wedging of stones and parts in screen openings. This motion upsets cup-like parts and prevents them from trapping media in which they have been processed.

Grades chips at rate of two to three tons per hour, avoids violent action that would scratch or nick parts. Variable-speed drive changes speed of vibration to the optimum for the task being performed.

One, two or three screens may be used at the same time. With three screens in use, machine will make as many as four simultaneous separations. It will separate chips from parts. size the chips at the same time.

Manufacturer: Esbec Barrel Finishing Corp., 18 Beech St., Byram, Conn.
For more data circle 2 on Reader Service Card

Automated Conversion Coating Machine

Description: A machine designed to be used in applying conversion coatings in volume operates fully automatically. It is recommended by the

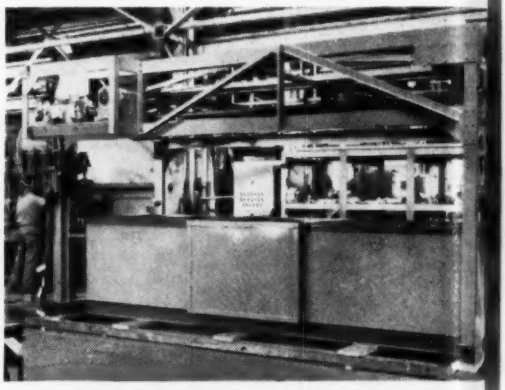
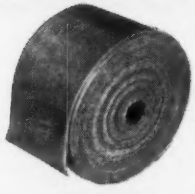


Fig. 1 — Automatic conversion coating machine with barrel (right) ready for loading.

Bond® TACK CLOTH for a SPECK-FREE FINISH EVERY TIME!

SAVE TIME AND WORK WITH BOND TACK CLOTHS — NOW AVAILABLE IN HANDY ROLLS OR CUT BULK—WHITE OR GOLD —IN FOUR DIFFERENT TYPES OF CLOTH

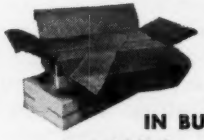
Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36″ wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.
No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up! The Cut Bulk size is 18″ x 36″ . . . folded to 4½″ x 18″ or 9″ x 18″ for ease of handling. ALL BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free, and Wax-Free. Gives a sparkling speck-free Finish every time. Clean and Sanitary. No waste. Choice of Standard, Extra Tacky or Less Tacky.



IN ROLLS
Cut off any size piece to use as needed.

TRY THEM AND COMPARE RESULTS.
Samples Gladly Sent Upon Request.

Bond® CHEMICAL PRODUCTS CO. 2639 N. CLYBOURN AVE. CHICAGO 14, ILLINOIS
"The Tacky Wiper Specialist"



IN BULK
Cut and folded. Ready to use.

ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES—144 TO THE CARTON.
A WARRANTY OF SATISFACTION IN EVERY CARTON.

For more data circle 348 on Postpaid Card

Is chip and oil removal your problem?

If your present method removes the oil *but does not remove the chips* *you need the Magnus method.*

Let us show you how the double-barreled *Magnus method of chemicals* ✚ *mechanical agitation can remove both oil and chips* *economically! efficiently! thoroughly!*

Write directly to Magnus for Bulletin 10,000G, 208 South Avenue, Garwood, New Jersey.

INDUSTRIAL FINISHING DIVISION

magnus

CHEMICAL COMPANY INC.

magnus a world-wide organization specializing in cleaning and protection of all surfaces.

For more data circle 349 on Postpaid Card

manufacturer, Hanson-Van Winkle-Munning Co., for blackening, phosphatizing, bright dipping, pre-cleaning and pickling.

The prototype "Convert-O-Matic" machine is equipped with a barrel recently introduced by H-VW-M. This barrel has a door that opens and closes automatically to receive and discharge work.

Cycle: The barrel comes from the unload station with door open. A signal operates the hopper or other loading device to meter out the load into the barrel. Another control starts rotation and the door automatically closes. It remains closed during the processing cycle.

The cycle is flexible. Each treatment tank has a timer. Barrels may be rotated continuously, intermittently, or not at all, in the tanks, during transfer and at the unloading station.

Chains and drive carry the barrels from station to station and to the starting point. Another drive raises and lowers the elevator framework to immerse the barrels in the tanks.

An unloading station is beyond the final solution tank in the treatment cycle. Rotation of the barrel at this station actuates the lever mechanism that opens the door on the barrel and discharges the work. Rotation of the barrel is continued until the opening is positioned properly to receive the next load. The barrel then is retracted to the loading station.

Although the prototype machine is equipped with an automatic barrel, H-VW-M states that the machine is

Chemists call them urethanes! You'll call them amazing! They're the most corrosion-resistant coatings and special product finishes yet developed.

Besides astounding ability to withstand splash, spillage and fumes of corrosive chemicals, BFC Urethanes are remarkably resistant to abrasion, heat, sunlight and weather and have exceptional flexibility. Two component system is easy to use.

Product specifications, resistance charts, application information and booklet "What Every Maintenance Man Should Know about URETHANE COATINGS" sent FREE on request.

BETTER FINISHES & COATINGS, INC.

276 Doremus Avenue Newark 5, New Jersey

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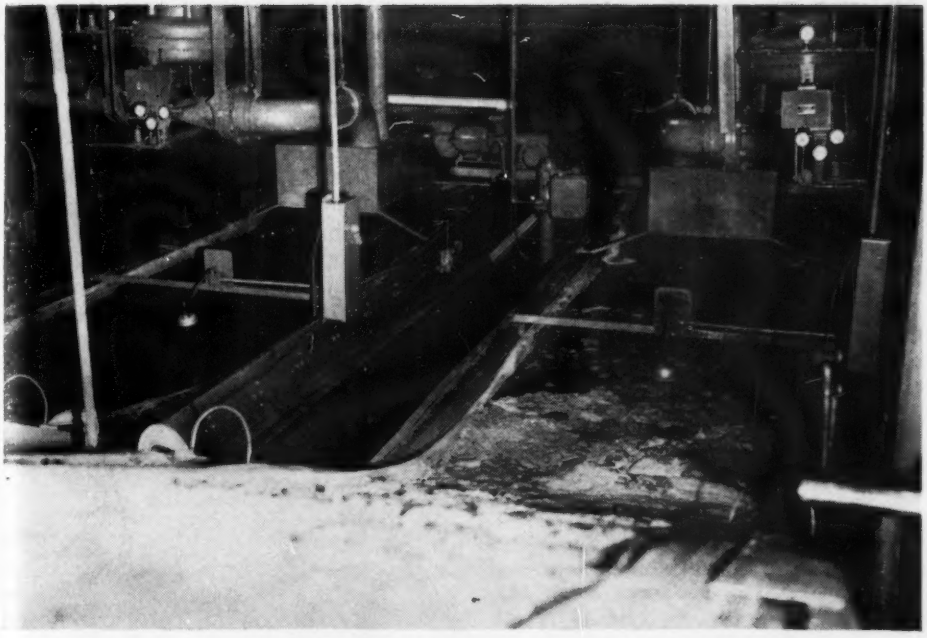

Cut the OVERHEAD in OVERSPRAY with CFC Delpark FILTERS

CFC Delpark Paint Spray Booth Filters cut maintenance costs by automatically removing paint overspray from wash water.

CFC Delpark Filters prevent plugged jets or nozzles, eliminate undue wear on pumps, avoid frequent tank draining and cleaning. Valuable pigments are more easily reclaimed.

CFC Delpark Filters are continuous and self-cleaning. They operate on the gravity principle, discharging paint in a relatively dry state to an outside container.

Write for technical literature or Commercial Filters engineering assistance to Department. PF.

COMMERCIAL FILTERS CORPORATION
MELROSE 76, MASSACHUSETTS
PLANTS IN MELROSE, MASSACHUSETTS AND LEBANON, INDIANA

MICRO-CLARITY AT MINIMUM COST

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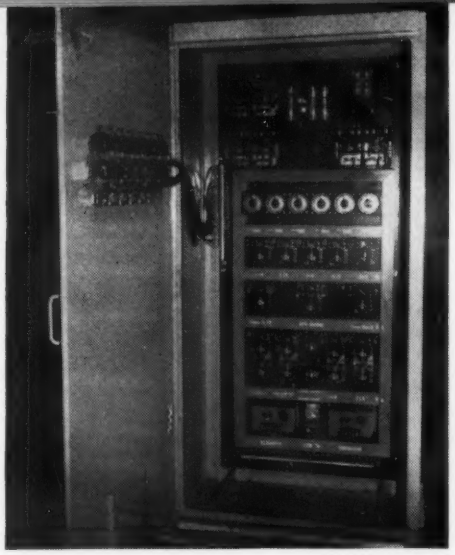


Fig. 2—Control panel for automatic conversion coating machine has six variable timers—one for each station. Push buttons and indicating lights on the door identify phase of operations being performed at all times.

equally adaptable to conveying baskets, tray loads or bulky parts suspended from the machine's carrier.

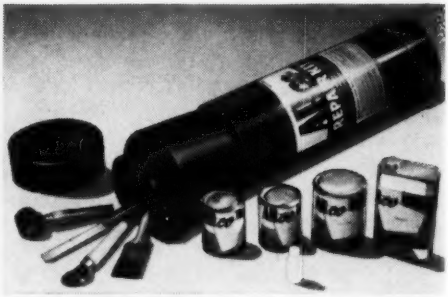
Manufacturer: Hanson-Van Winkle-Munning Co., Matawan, N. J.

For more data circle **3** on Reader Service Card

★ ★ ★

Rubber Lining Repair Kit

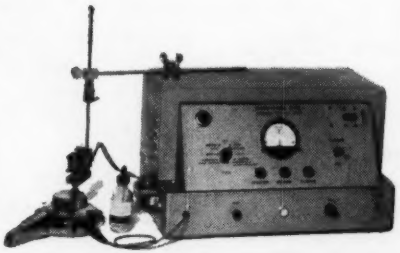
Description: A kit for repairing and maintaining rubber-lined and rubber-covered tanks, vessels and fittings contains complete application instructions plus all the necessary tools, materials.



Arco Repair Kit: for linings and coverings

Test CHROMIUM-NICKEL-COPPER over ZINC DIE-CAST with Model 955 . . .

Here's a new test which has been added to many applications of the Kocour Electronic Thickness Tester. You can obtain separate thickness readings of Chromium-Nickel-Copper over zinc base die-cast. In addition you can test thickness of heavy or decorative chromium, silver, tin, cadmium, zinc, brass, copper, nickel, lead, and other alloy deposits on various basis metals with an accuracy of 90-95%. Write for literature.



ASK FOR A DEMONSTRATION OR 15-DAY FREE TRIAL!

KOCOUR CO.
4814 S. St. Louis Ave.
Chicago 32, Illinois

Model TT owners . . . Note!

If you now have a Model TT, any series, the new test is available to you. Ask for prices and instructions on the New Solution R-52.

For more data circle 352 on Postpaid Card

the amazing new Steinemann
PRESSURE CURTAIN COATER

gives exact quality control for all organic finishes

HI-SPEED — HI-QUALITY — LO-COST — NO WASTE

SUPERB FINISH of exact mil thickness, speedily applied with no waste! These are the amazing features of the new Steinemann Fressure Curtain Coater that is revolutionizing the finishing industry. It applies one or two component polyesthers, vinyls, epoxy resins, lacquers, paints to practically any flat stock at any thickness. Speed can be steplessly varied from 130 to 400 ft./min.

NO WASTE
No mist, no splash, no slop! A flawless coating is laid on the work as it travels at high speed through the vertical curtain of material. Unused material automatically returns to reservoir for recirculation. View above shows the pouring head and return trough which catches all unused material. Available with single or double pouring head.

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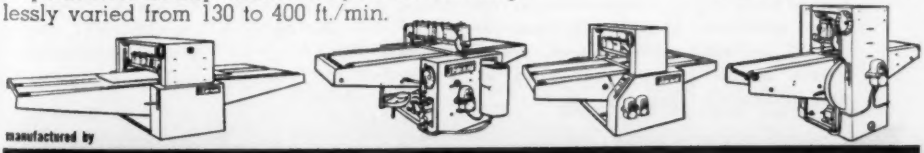

manufactured by

GEORGE KOCH SONS, INC. Evansville 4, Indiana

For more data circle 353 on Postpaid Card

Sheet rubber furnished in the repair kit is specially treated to resist all solutions normally contained in rubber lined equipment, spark tested to ensure freedom from leaks and voids. Special kit available for neoprene.

Manufacturer: Automotive Rubber Co., Inc., 12550 Beech Rd., Detroit 39.

For more data circle **4** on Reader Service Card

Automatic Buffing Workholder

Description: The PG Semi-Matic Work Holder recently introduced by Divine Brothers Company is said to take the hard labor out of buffing and polishing.

The Semi-Matic holds the work against the wheel, turning it and oscillating it across the wheel. The operator loads the work, advances it to the wheel, and the Semi-Matic does the rest. If the cycle is long enough, the operator can run two or more machines.

Adjustments for spindle height, tilting up or down to 15 degrees, cross traverse, wheel wear and spindle swivel are provided. Unit can be used at the right or left side of the lathe.

The stroke on the Semi-Matic is adjustable up to 12 inches maximum, so that work that is wider than the face of the wheel can be buffed. The stroke action also speeds cutting on straight work. It is set at zero if not required.

Three spindle speeds provide the correct spindle and stroke speed for any work diameter. Spindle rotation

GRIPALLOY®

primer and enamel

. . . A Corrosion Resisting, Metal Etching Coating, designed as a primer . . . . May also be used as a top coat . . . . Available in all colors . . . . Tight adhesion to 25 different metals . . . . A natural for Magnesium Alloys, Aluminum and Non-ferrous metals . . . . Air dries in 5 minutes for most topcoats.

TENAX FINISHING PRODUCTS CO.
Newark 5, New Jersey

Lacquers — Enamels — Synthetics — Vinyls
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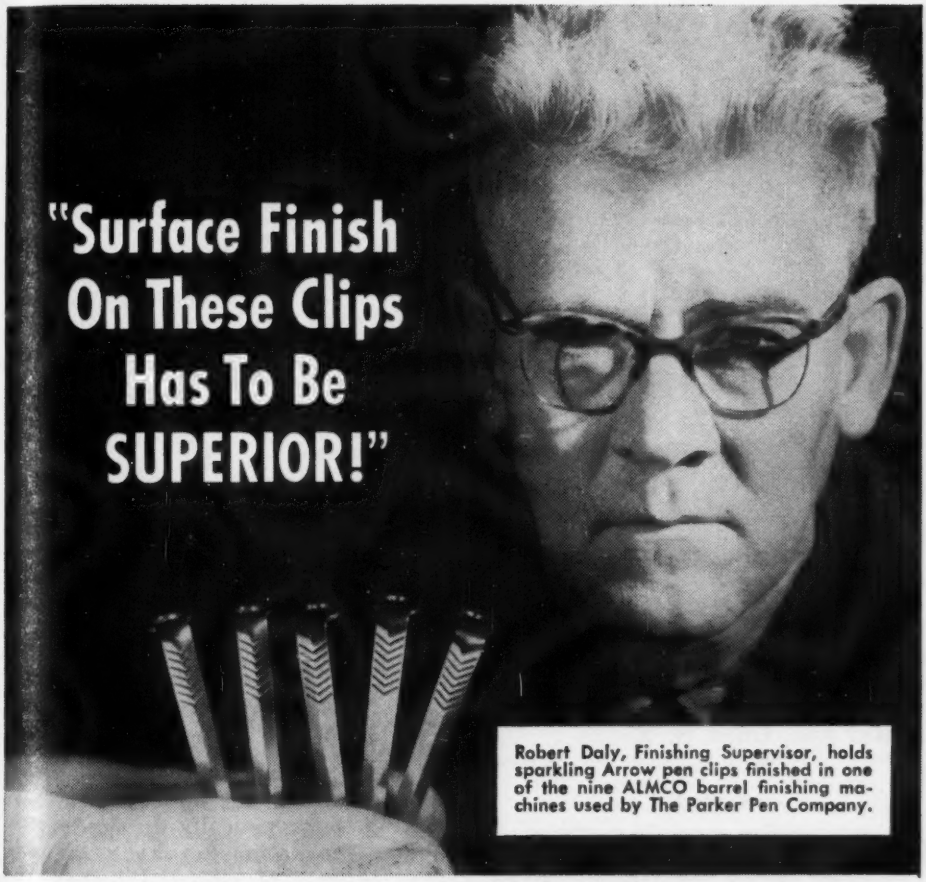


Robert Daly, Finishing Supervisor, holds sparkling Arrow pen clips finished in one of the nine ALMCO barrel finishing machines used by The Parker Pen Company.

BECAUSE THE ARROW is a trademark of The Parker Pen Company, the surface finish on each of these distinctive pen clips has to be more than just good. *It has to be superior!* What's more, production must be high and costs must be low.

That's why The Parker Pen Company now has *nine* ALMCO precision barrel finishing machines running *around the clock* in their parts deburring and finishing department. Used for cutdown operations, descaling after heat treatment, deburring and polishing, the scientific ALMCO Supersheen method helps the Parker people to meet high standards of quality, reduce costs and increase production, simultaneously!

Perhaps ALMCO finishing methods can do as well for you. It's no trick to find out. Just write us on your letterhead asking for an ALMCO sales engineer to call. Or, send sample parts and specifications on results desired direct to ALMCO's main laboratory at Albert Lea, Minn.

Meanwhile, send today for your FREE 52-page SUPERSHEEN handbook.

Even though the nine ALMCO machines are used 24 hours a day at Parker Pen, very little maintenance is required. That helps them save money, too!

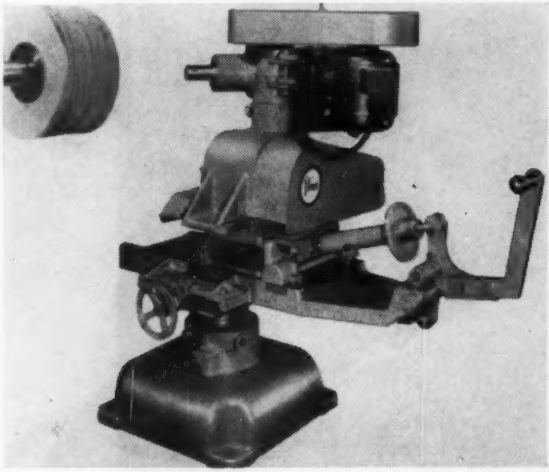
ALMCO

QUEEN PRODUCTS DIVISION,
KING-SEELEY CORP.

810 Marshall St. • Albert Lea, Minnesota

Sales and Engineering Offices in Chicago, Detroit, Los Angeles, Newark, New Haven, Philadelphia

For more data circle 355 on Postpaid Card



Divine Brothers PG Semi-Matic Workholder

may be reversed if desired. Spindle is bored for vacuum chucking.

Manufacturer: Divine Brothers Co., Seward Ave., Utica, N. Y.

For more data circle **5** on Reader Service Card

★ ★ ★

Disposable Clothing

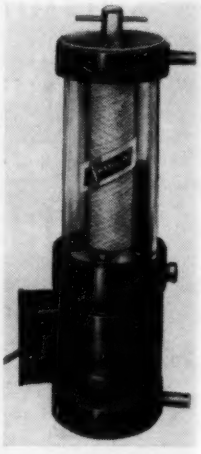
Description: Industrial clothing that can be worn and then discarded is useful in plants and laboratories. Available as lab coats, jackets, aprons, shirts and trousers.

Manufacturer: Textile Products, 181-189 Chestnut St., P. O. Box 638, Newark 1, New Jersey.

For more data circle **6** on Reader Service Card

★ ★ ★

Filter Pump



Canned Filter

Description: The LEI Series "canned" filter pump recently introduced by Sethco Mfg. Co., Merrick, N. Y., is a compact portable unit that includes a filter chamber, filter tube, pump and motor in a single housing. The manufacturer especially recommends this unit for filtering expensive or hazardous solutions.

Specifications: Pump located inside the ⅛-h.p. motor housing is magnetically driven by the motor, eliminating packing, seals, other sources of potential leaks. All pumping parts fabricated of stainless steel for greater corrosion resistance. Motor windings isolated from pump chamber by stainless steel liner. Transparent plastic or glass filter

YOUNG BROTHERS *Baking and Drying* **OVENS**

designed and built for every product and process requirement

Batch and Conveyor types up to 1000° F.

Write for Bulletin 157

YOUNG BROTHERS CO. 1830 Columbus Road Cleveland 13, Ohio

Over 60 years of service

For more data circle 356 on Postpaid Card

FOR THE FINEST PLATING FINISHES SKILLED HANDS CAN MAKE

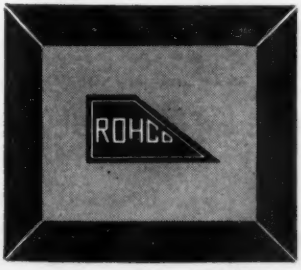
CALL FOR THESE PACE-SETTING ROHCO® PRODUCTS, *DISCOVERED AND CONTROLLED IN THE HULL CELL:*

For unequaled, perfect Cadmium Plating . . .
ROHCO 20XL CADMIUM BRIGHTENER

For brilliant, low cost Zinc Plating . . .
ROHCO 100 BARREL ZINC BRIGHTENER
ROHCO 503 STILL AND AUTOMATIC ZINC BRIGHTENER

For retained beauty and added corrosion resistance . . .
RODIPS CD-3 AND CD-4 ON CADMIUM PLATE
RODIPS ZN-22 AND ZN-30 ON ZINC PLATE

Profit-making, successful platers are getting superb quality with preferred ROHCO Products. They know in today's competitive market nothing but the finest finishes can continually bring in repeat business from satisfied customers. With the use of ROHCO Products, highest quality and absence of rejects are a matter of course in daily production. Keep in mind that these products must have a wide latitude of operation and ease of maintenance to earn the ROHCO Trade Mark.



Your Nearby ROHCO Representative is eager to work with you . . .

Nationwide Stockpoints

R. O. HULL & COMPANY, INC.

1304 Parsons Court • Rocky River 16, Ohio

For more data circle 357 on Postpaid Card

chamber. Filter chamber has one or more filter tubes containing various types of media, according to the solution being filtered. Precious metals can be reclaimed by igniting the tube. Rated at 100-150 g.p.h. for Model LEI-10 and 200-300 g.p.h. for Model LEI-20. Pump itself will deliver 1,300 g.p.h. on open pumping.

Illustrated specification sheets are available from the manufacturer.

Manufacturer: Sethco Mfg. Co., 2292 Babylon Turnpike, Merrick, New York.

For more data circle **7** on Reader Service Card

★ ★ ★

Vacuum Coater

Description: A 72-inch vacuum coater with six stations which hold workpieces up to 22 by 50 inches, recently introduced by the Rochester Division of Consolidated Electrodynamics Corp.

Specifications: Model LC1-72; pump down time to pressure of 5 x 10^{-4} mm Hg is 5.5 minutes; complete cycle, from inserting the workpieces into the vacuum chamber to removal of the coated item, can be made in 9 minutes; operating range, 5 x 10^{-5} to 2x10^{-3}mm Hg.

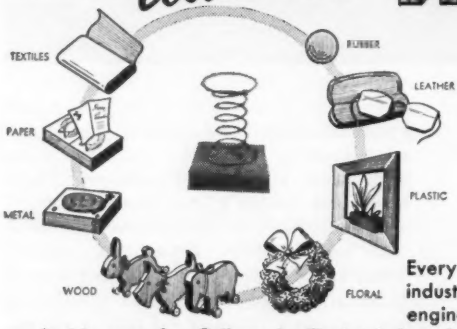
Planetary drive fixture contains six rotating stations; each of the six stations has six removable work-holding rods that may be adjusted along the length of each spoke of the station fixture to working diameters of two to 20 inches.

The complete vacuum cycle is semi-automati-

TO ADD BEAUTY, COLOR AND SALES APPEAL
FOR CUSHIONING
FOR SILENCING

FOR A DURABLE PROTECTIVE COATING

INVESTIGATE Cellusuede FLOCK



THE PRODUCT FINISH *with* A THOUSAND USES

Every day product designers, industrial finish and material engineers are finding new, profitable uses for Cellusuede Flock—industry's most versatile product coating. With these cotton, rayon or hair fibers, you can add new beauty, color, and sales appeal to your product, provide a durable protective finish, silence noises, or dampen vibration. Best of all, the soft velvet-like Cellusuede finish is easy to apply to wood, metal, plastic, fabrics, leather, cardboard, or paper surfaces, either on a modified or production line basis. It's inexpensive, more durable than fabric, and readily available in a wide range of textures and beautiful colors. Investigate today the profit possibility of using Cellusuede for your product.

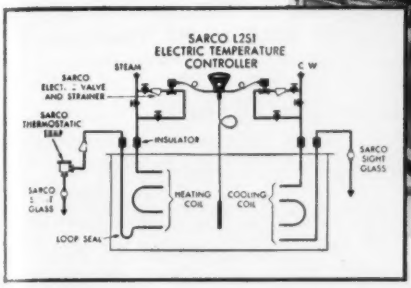
FREE BULLETIN—SAMPLES, TECHNICAL SERVICE

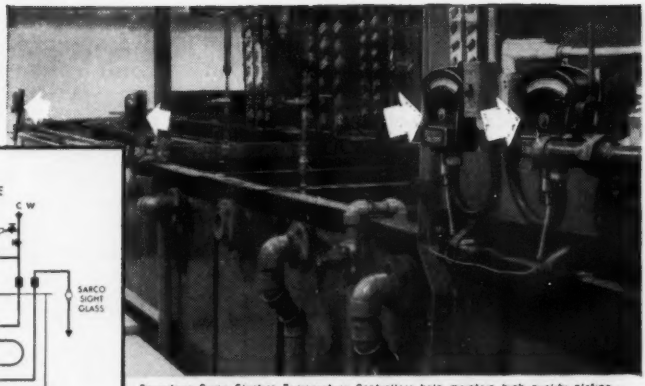
Write for 12-page bulletin illustrating profitable uses and applications. For help with a specific job, Cellusuede's technical service and unexcelled facilities are available for producing samples to meet your needs.

CELLUSUEDE PRODUCTS, INC.
Producers of Natural and Synthetic Flock

512 N. MADISON STREET • ROCKFORD, ILL.

For more data circle 358 on Postpaid Card





Seventeen Sarco Electric Temperature Controllers help maintain high quality plating—cut costs—at Ronson Corporation, Delaware Water Gap, Pa. Controllers are used on chrome, nickel, copper, silver, and gold plating tanks. This is a repeat installation.

Improve plating quality—cut your costs with low-cost temperature control

Unstable bath temperatures . . . the result of erratic manual temperature control . . . are sure to lead to costly rejects, wasted man-hours and breakdown of plating solutions.

You can solve these problems at *low cost* . . . by installing always-reliable Sarco Automatic Temperature Control. Just think . . . a complete Sarco System is yours for as little as $130 a tank!

1. **You improve plating quality** because creeping temperatures are a thing of the past.
2. **You lower rejects** because solutions are held automatically to pre-set temperatures. No chance for human error to mess up a tankload . . . and cut into profits.
3. **You get better utilization of time** —platers are able to concentrate on their plating work. No worrying about bath temperatures. No turning on and off of valves.
4. **You save plating solutions** — because automatic control prevents boil-off caused by overshooting temperature.

Write for Bulletin 1025-B or consult your plating supplies jobber. Sarco Company, Inc., 635 Madison Avenue New York 22, N. Y.

Sarco LS1 Electric Temperature Controller

A COMPLETE SYSTEM FOR AS LITTLE AS $130 A TANK!

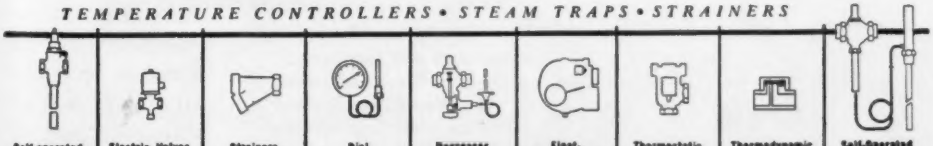
Think of it . . . automatic temperature control that often pays for itself in weeks!

Easy-to-read controller dial clearly indicates temperature being maintained. Temperature setting quickly changed by turning one knob.

2224-B

SARCO *improves product quality and output*

TEMPERATURE CONTROLLERS • STEAM TRAPS • STRAINERS



For more data circle 359 on Postpaid Card

cally controlled by machine's four-position indexing switch.

Manufacturer: Rochester Div., Consolidated Electrodynamics Corp., 1775 Mt. Read Blvd., Rochester 3, N. Y.

For more data circle **8** on Reader Service Card

★ ★ ★

Flock

Description: A brilliant-colored fluorescent flock called "Fire-Flock" is made of viscose rayon, can be applied by electrostatic equipment, spray, mechanical beater bar. Useful for decorative applications, lettering, packaging. Color card available from the manufacturer contains samples of 10 hues that are now available.

Manufacturer: Cellusuede Products, Inc., 512 N. Madison St., Rockford, Ill.

For more data circle **9** on Reader Service Card

★ ★ ★

Silicon Rectifiers

Description: Silicon rectifiers recently introduced by Rapid Electric Co. are recommended by the manufacturer for applications where the units must operate at high ambient temperature and/or in atmospheres where heavy contamination is present.

Characteristics: Function at temperatures in excess of 160 deg. F. without detrimental effects; non-aging characteristics; hermetically sealed construction protects the equipment from damage by atmospheric contamination. High efficiency ratings.

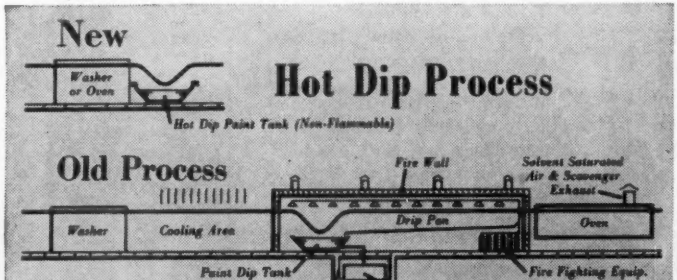
Specifications: Manual tap switch, self-contained or remote; automatic voltage stabilization; automatic constant current; saturable-core reactor;

To page 102→

NEW
PAINT SAVER

Revolutionary Hot Dip Process.
David-Ludwig Company solves your PAINT FINISHING problems.

This hot dip process has greatly simplified paint dip operations with resultant savings in *paint usage, floor space* and *initial cost.* The process consists of preheating the article and dipping it into a paint operating at 160° F. Leaving the tank the solvent is instantly evaporated from the paint by the heat radiating from the article. This provides *quick drying, uniform thickness* and *drip-free coat.* Since the solvent used is trichlorethylene the system is *fireproof,* providing *safety* for plants and employees. Contact A. D. Ludwig, Vice President, for additional information.



David Ludwig co.

Manufacturers and Installers of:
Finishing Systems
Ventilating Systems
Dust Collecting Systems

14290 Goddard Avenue, Detroit 12, Michigan

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NOW!!

SINTABUR*
SINTABRITE
SINTAHONE
SINTACUT
SINTACOTE

Scientifically-designed sintered-metal
TUMBLING SHAPES

(*TM. Reg. U.S. Pat. Off. & Pat. Pend.)

Here is an entirely new type of tumbling media with unique advantages for deburring, grinding, burnishing, and dry lubricant coating. These new media are produced by an exclusive Dixon Sintaloy process which permits low-cost, mass production of shapes with characteristics scientifically controlled for barrel finishing requirements.

Exceptionally long life — plus added savings in shorter work cycles, reduced labor and prolonged life with repeated re-use.

Non-clogging — non-powdering — precise shape, uniformity and great durability minimize clogging, jamming, charging or discoloring work.

Greater efficiency — more uniform results — the ideal media for the job means faster more efficient cutting, more uniform finished parts.

Simpler standardized operation — no compensating for wear during runs — speeds, simplifies and saves labor and assures higher work quality.

Write or wire direct to factory for full data.

DIXON SINTALOY INC.

a subsidiary of The Joseph Dixon Crucible Company
537 Hope Street, Stamford, Connecticut

For more data circle 361 on Postpaid Card

Head start for industrial finishes

Every step toward faster, safer, more effective metal cleaning heads a company in the direction of extra profit. In the competitive race for higher quality products, produced faster, the company that crosses the "finish line" first is the one that gets a healthy start by keeping abreast of the latest developments in the industry. This series of chemical news reports will keep you posted on what's new in the chemistry of metal cleaning.

Formulators shave costs with sodium orthosilicate

Alert formulators are saving freight dollars on Dow's S.O.S. containing less than one molecule of water of hydration. And the open-head Dow drum rides better in transit, saves floor space in shipping and storage.

Because it contains less than one molecule of water of hydration, Dow S.O.S. saves formulators freight costs on every drum. The almost complete absence of water means that freight dollars are spent on S.O.S. – not on unnecessary water.

High acid capacity and high pH of Dow S.O.S. give top cleaning action. Oils, fats and waxes disappear from metal like magic when exposed to the cleaning action of this efficient alkali. Experienced formulators depend on Dow S.O.S. and Caustic Soda to make their metal cleaning compounds the best on the market.

Formulators get another bonus in Dow alkalies—the improved open-head drum. It practically eliminates the headache of freight claims and loss from shipping damage. And formulators find many uses in their business for these smooth-riding, damage-free drums.

The Dow full open-head steel alkali drum takes up almost a full square foot less floor space than conventional drums and has a longer bearing surface which eliminates "climbing" of drums in shipment.

These advantages put Dow's formulator customers in a better competitive position . . . enable them to give *their* customers the best alkali cleaning compounds.

A basic producer of alkali for top quality metal cleaning compounds, Dow is constantly at work improving not only product quality but packaging. "Just to be sure," as one Dow product manager put it, "that the formulators who want the best come to us."

DOWANOL:

Passes "acid test" in rust removers

Metal cleaners who use a hot bath (170°F.) of phosphoric acid type rust removers are switching to Dowanol® TPM for their glycol ether solvent.

Dowanol TPM (tripropylene glycol methyl ether) gives better solubilizing

Formulators use Dow Alkalies to make topnotch metal cleaning compounds.

and penetrating characteristics and, because of its high boiling point (238°C.), does not readily evaporate under extremely high bath temperatures.

In brush and spray rust removal operations, as well as dip baths, Dowanol TPM is helping phosphoric acid removers do a better job at lower cost.

Dowanol TPM is only one of the Dowanol family of glycol ether solvents made by Dow (only company which makes both an ethylene and propylene series). Producer of the widest line of glycol ether solvents available, Dow is in a position to furnish extensive technical information on these products for metal cleaning operations.

CHLOROTHENE: ***Puts more solvent power, more safety into cold cleaning***

Maintenance cleaning of metal parts calls for a solvent with top cleaning power, maximum safety and little or no residue. And Chlorothene® (Dow 1,1,1-trichloroethane, inhibited) fills the bill.

Plant maintenance men are using this new solvent to get better, safer cleaning in dip, spray and wipe applications. They're cleaning everything from nuts and bolts to big machine tools.

Many plants switched to Chlorothene because management was sensitive to safety factors. But once in use, Chlorothene proved itself as a top-performing cleaner, made other cleaners just plain out of date.

Because it is low in toxicity and has no flash or fire point (flammability characteristics similar to trichloroethylene), Chlorothene is quickly catching on for production cleaning as well as maintenance cleaning operations.

★ ★ ★ ★

For more information on any of the chemicals discussed in this advertisement write THE DOW CHEMICAL COMPANY, *Midland, Michigan, Chemicals Sales Department 763G.*

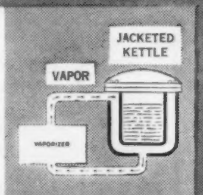
MORE GOOD NEWS
for the metalworking industry

Orthodichlorobenzene

. . . Tops for removal of soft carbon deposits as well as oils and tars. Cost savings possible with water-soluble emulsions—formulations available on request.

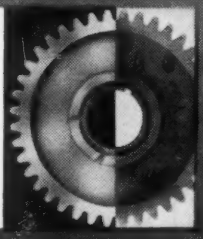
Dowtherm®

. . . Safer, organic heat-transfer medium for operations ranging from 300° F. to 750° F. Minimizes fire hazards, permits more economical, pinpoint heat control, with little pressure!



Trichloroethylene

. . . Now NEU-TRI* (recently added neutral grade) gives Dow customers a full line of solvents to choose from for top efficiency in vapor degreasing.



Dowicide® A

. . . Preservative keeps cutting oils "fresh" and odor-free by preventing growth of bacteria and mold. Makes oil last up to three times as long.

Dow chemicals basic to the metalworking industry

Chlorinated Solvents • Brominated Aliphatics
Alkalies • Ion Exchange Resins • Glycol Ethers
Preservatives • Hydrochloric Acid • Phenolsulfonic Acid • Ammonia • Industrial Glycols
Polyethylene Glycols • Polypropylene Glycols

YOU CAN DEPEND ON

DOW

For more data circle 362 on Postpaid Card

magnetic amplifier regulation; adequately protected electrical circuits; water-cooled units available. Unit ratings available from 6 to 1,000 volts. Single-rated units up to 5,000 amperes. Complete specifications, photos in Bulletin GSR-1.

Manufacturer: Rapid Electric Co., 2881 Middletown Rd., New York 61, New York.

For more data circle **10** on Reader Service Card

Aluminum Bright-Dip Test Solution

Description: A method for fast colorimetric determination of aluminum in bright-dip baths.

Procedure: Involves use of aluminon, rarely used in the past because of negative interference in the presence of phosphate. This interference is minimized in the Victor method by regulation of pH, sample size and reagent contamination. Microgram amounts of aluminum can be determined accurately, the manufacturer states.

Catalog So-V-20 gives complete details.

Manufacturer: Fisher Scientific Co., 401 Fisher Bldg., Pittsburgh 19, Pa.

For more data circle **11** on Reader Service Card

★ ★ ★

Spray Cleaner

Description: A spray cleaner called Vythene-E, recently introduced by Tect, Inc., is a specially purified solvent with a low percentage of nonvolatile materials and a narrow boiling range.

Applications: Recommended for cleaning oxygen-bearing equipment, sensitive electronic parts and for precious metal contacts

NEW!

Sethco all-in-one

150 GALS. PER HR.

FILTER PUMP UNIT

LEAKPROOF, SPACE-SAVING and PORTABLE

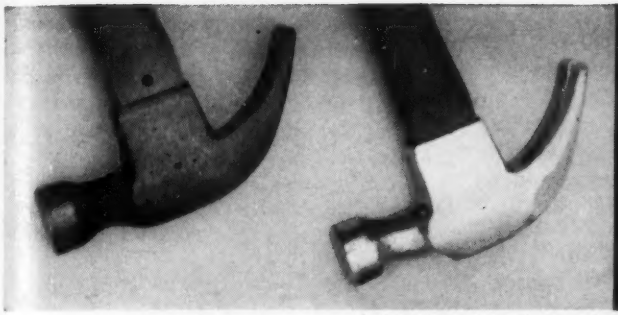
FULL VIEW CHAMBER: High temperature Epoxy-Lucite to 140° F. or Epoxy-Pyrex to 250° F. • **FILTER TUBES:** Cotton, Dynel, Porous Stone or Porous Carbon. • **CANNED PUMP:** Corrosion resistant stainless steel, centrifugal, self-lubricating and leak-proof. No seals, no stuffing box needed. • **MOTOR:** ⅛ HP, 110v, 60cy, 1 ph, Totally enclosed. With thermal starting and overload relay. • **HANDLE:** for easy portability where it's needed. • **BASE:** Corrosion resistant high temperature Epoxy.

WRITE for Illustrated Folder

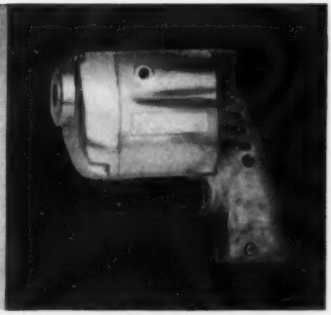
Sethco Mfg. Co.

2292 Babylon Tpke., Merrick, L. I., N. Y.

For more data circle 363 on Postpaid Card

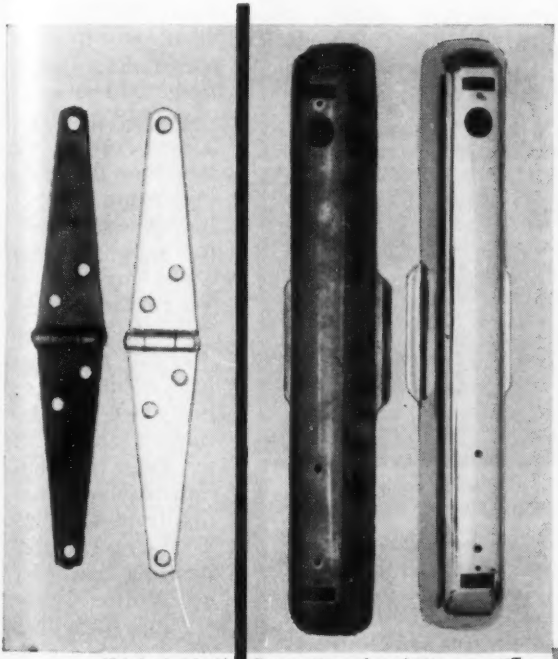


Shelf appeal can be increased for only 3¢



Finishing costs reduced to 12¢

If It Looks Good... It Sells Better



High class look for 4¢

Fluorescent lamp reflector finishing cost cut 62%

If you're looking for a way to increase the sales appeal of your products by adding a quality appearance at low cost, you should investigate vacuum coating.

While this modern process is not a cure-all, most likely you'll find it will add new life to the items you manufacture — and may cut your costs spectacularly, too! Brilliant, eye-catching, metallic finishes, in a wide range of colors, can be applied on plastics, metals, wood, glass, paper, fabrics and many other materials. Today's vacuum coatings are brighter than buffed and polished electroplating, cost less, and in some applications stand up better.

You don't have to take chances, either. Send us a sample of your product and give us details about its use. We'll tell you whether your application is a good one, show you how your product will look, and estimate your costs. Then, if you want, we'll supply a complete installation, guarantee its output, show you how to run it efficiently, and even train your operators. Write us today!

A Subsidiary of National Research Corporation

DEPT. 23X, CHARLEMONT ST., NEWTON, MASS.

SEE US AT BOOTH 253
NATIONAL PLASTICS EXPOSITION
CHICAGO • NOVEMBER 17-21

NRC
EQUIPMENT CORPORATION

For more data circle 364 on Postpaid Card

used in radio and television sets.

Manufacturer: Tect, Inc., Northvale, New Jersey.

For more data circle **12** on Reader Service Card

★ ★ ★

Polishing-Wheel Lubricant

Description: A lubricant called AP Lubar is easy to apply on polishing wheels and abrasive belts. It leaves a wet surface that resists loading or packing of abraded particles of metal on the cutting face of belts or polishing wheels. This bar-type lubricant is especially recommended by the manufacturer for aluminum and other soft metals.

Manufacturer: Lea Manufacturing Co., 16 Cherry Ave., Waterbury, Conn.

For more data circle **13** on Reader Service Card

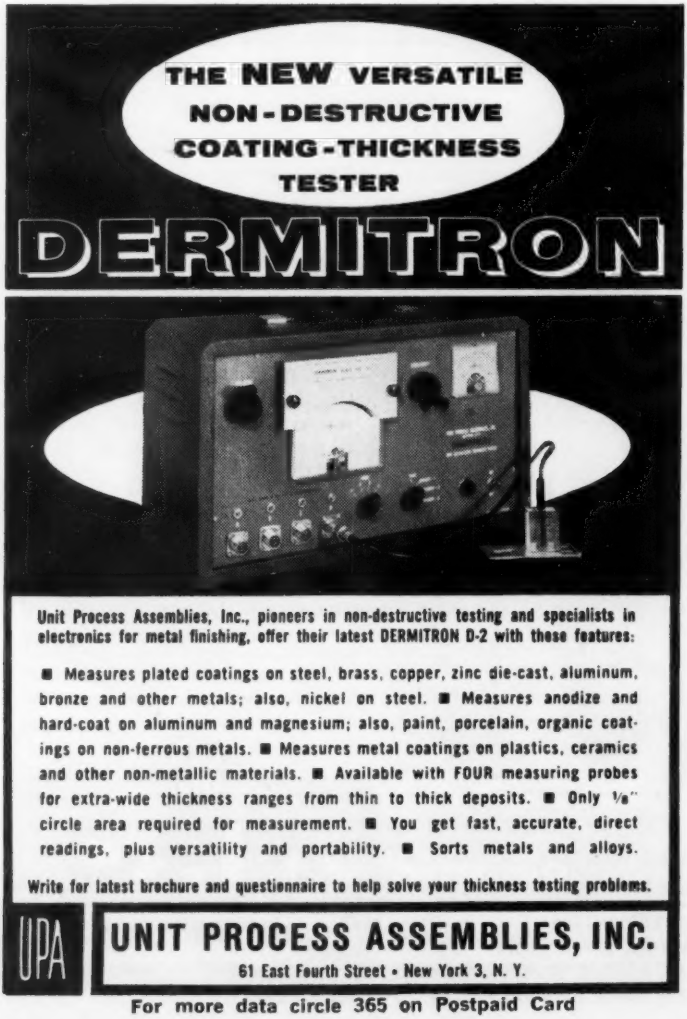
★ ★ ★

Dry Acid Activator

Description: Enth-Acid 82, a dry, powdered replacement for liquid acids introduced by Enthone, Inc., is a blend of acid salts, activators and surfactants that is effective for making solutions used in activating iron, steel, brass, copper or zinc-base die castings prior to plating. It is also useful as a pickling agent for removing rust and scale from steel.

How to use: Acid solutions are prepared by dissolving the salts in water at concentrations ranging from 4 oz. to 3 lbs./gal., depending on the application.

Properties: No objectionable fumes; solutions have a high residual acidity, it is stated, which assures the maintenance of the same degree of


THE NEW VERSATILE
NON-DESTRUCTIVE
COATING-THICKNESS
TESTER
DERMITRON
Unit Process Assemblies, Inc., pioneers in non-destructive testing and specialists in electronics for metal finishing, offer their latest DERMITRON D-2 with these features:
■ Measures plated coatings on steel, brass, copper, zinc die-cast, aluminum, bronze and other metals; also, nickel on steel. ■ Measures anodize and hard-coat on aluminum and magnesium; also, paint, porcelain, organic coatings on non-ferrous metals. ■ Measures metal coatings on plastics, ceramics and other non-metallic materials. ■ Available with FOUR measuring probes for extra-wide thickness ranges from thin to thick deposits. ■ Only 1/8" circle area required for measurement. ■ You get fast, accurate, direct readings, plus versatility and portability. ■ Sorts metals and alloys.
Write for latest brochure and questionnaire to help solve your thickness testing problems.
UPA
UNIT PROCESS ASSEMBLIES, INC.
61 East Fourth Street • New York 3, N. Y.
For more data circle 365 on Postpaid Card

FINISHING A BUST?

Switch to SPEE-FLO HOT SPRAY SYSTEMS

Exaggerated? Well, a little, maybe. But the cost of lost materials, time and quality due to runs, sags, and excessive overspray needs no exaggeration to make it an eyesore on any operating budget. Spee-Flo Hot Spray Systems save 25-40% in materials; banish runs, sags and orange peel. Hot spray finishes dry faster, look better, last longer, too. Application techniques are the same as for conventional spray. The equipment is simple and trouble-free, requiring negligible maintenance. If your finishing operation is a bust — either in cost or quality — turn it into a work of art at a savings with Spee-Flo Hot Spray.

Write for free booklet, "Why Hot Spray?"

THE SPEE-FLO COMPANY

6614 HARRISBURG • HOUSTON 11, TEXAS

138

For more data circle 366 on Postpaid Card

acidity over a long life span, regardless of the amount of work processed.

Literature on Enth-Acid 82 is available from the manufacturer.

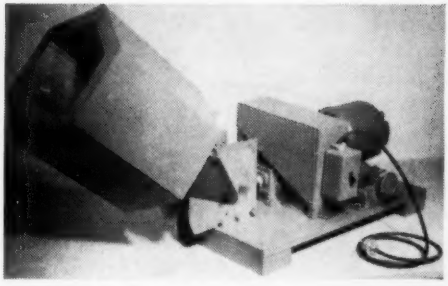
Manufacturer: Enthone, Inc., Subsidiary of American Smelting and Refining Co., 442 Elm St., New Haven, Connecticut.

For more data circle **14** on Reader Service Card

★ ★ ★

Small Tumbling Barrel

Description: A bench model tumbling barrel recently introduced by Polyfinish Corporation has an oblique - mounted barrel that can be adjusted to various angles.



Polyfinish Oblique Bench Model Barrel

Barrels available in wood, (eight- and ten-inch sizes) unlined steel and vinyl-lined steel. Speeds: fixed, three speed, infinitely variable. Plugs into 110-volt a.c. outlet.

Manufacturer: Polyfinish Corporation, P. O. Box 131, Flatbush Station, Brooklyn 26, N. Y.

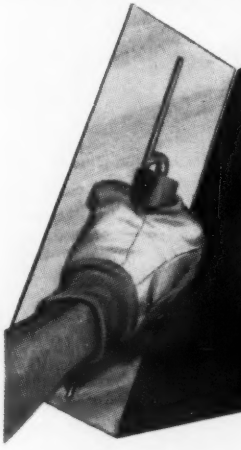
For more data circle 15 on Reader Service Card

★ ★ ★

Magnetic Paint Racks

Description: Shrader "MPF" magnetic racks hold steel parts by magnetic attraction during painting, degreasing, cleaning and other opera-

COROCRETE...



A CORROSION-PROOF **FLOOR SURFACING** THAT PROVIDES GREATER PROTECTION AGAINST ACIDS AND ALKALIES

7820-CC

Quickly and easily applied, COROCRETE offers the greatest floor surfacing protection available today. Corocrete is 4 times stronger than concrete . . . is resistant to impact and abrasion . . . sets up faster . . . and is guaranteed protection against acids, alkalies and solvents. COROCRETE is recommended in chemical and food processing, plating and metal working industries.

COROCRETE is an exclusive development of CEILCOTE . . . a name long recognized as leader in the corrosion industry. Write today for catalog!

COROCRETE CEILCOTE

another product of

THE CEILCOTE COMPANY, INC.

4848 Ridge Road • Cleveland 9, Ohio

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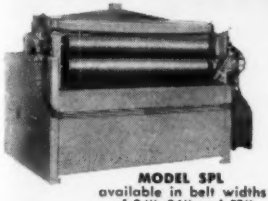
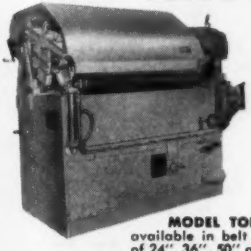
"Only machine capable of handling our rugged and precision sanding requirements on large aluminum panels"*

*Reported by
N. B. Barsha, Plant Engineer
Cupples Products Corp.
St. Louis, Mo.

TIMESAVER
SPEEDBELT
SANDERS



MODEL SPL
available in belt widths of 24", 36" and 50"
Sanding action is for underside of work.



MODEL TOP
available in belt widths of 24", 36", 50" and 54"
Sanding action is overhead.

"We were faced with the problem of sanding 1000 vertical aluminum panels, 28'x24"x3/16" for the exterior of the new U. S. Air Force Academy buildings. These panels required finishing to a uniform and precision surface specification. Before we purchased the Timesaver Model TOP-50, we thoroughly investigated the market for sanding machines of this type. The Timesaver "Speedbelt" was the only unit which possessed the durability, accuracy and rugged construction necessary for our requirements."

The Cupples Products Corporation's experience is typical of Timesaver "Speedbelt" Installations throughout the country . . . where performance and need to achieve production and cut costs is important. They can do all flat metal surface finishing, polishing and sanding formerly assigned to other methods . . . and do them better. What's more, savings made in labor, materials and maintenance soon pay for their low initial cost.

Investigate the advantages of Timesaver Sanders for your plant, write for literature and information today.

TIMESAVER SANDERS

P.O. Box 7446, Robbinsdale Station • Minneapolis 22, Minn.

Pioneers in Wide Belt Sanding for the Woodworking Industry

For more data circle 368 on Postpaid Card

tions. Horseshoe-shaped magnets on the ends of the tines on this rack immediately grip any part, large or small, hold it securely while it is being conveyed through the plant. Catalog sheet illustrates, gives complete details.

Manufacturer: F. W. Shrader Co., 11623 S. Broadway, Los Angeles 61, California.

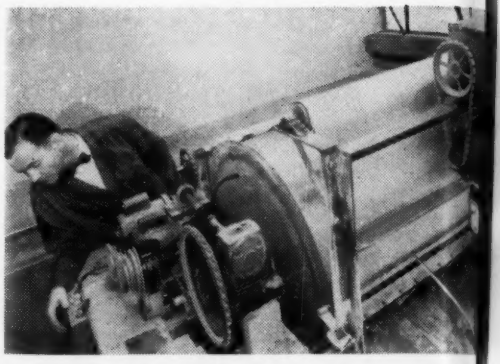
For more data circle **16** on Reader Service Card

★ ★ ★

Electrolytic Process for Making Zinc Foil

Description: A continuous electrolytic process for producing zinc as a thin foil has been developed by American Smelting and Refining Company. Sheets produced are from 0.001 to 0.005 inches thick and 26 inches wide.

Zinc is deposited electrolytically from a zinc sulfate bath onto a revolving drum. The foil is stripped from the drum in a continuous sheet of uniform thickness. This electrolytic process is said to be more economical than the older, conventional metal-rolling techniques. It produces a foil of high chemical purity with excellent



Zinc Foil: electrolytic process by Asarco

IT'S ALL AUTOMATIC

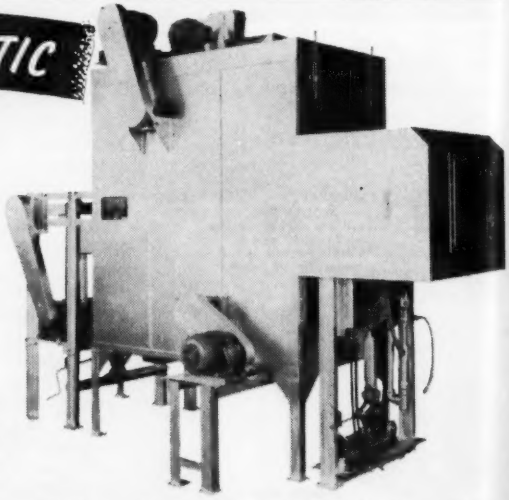
1-Ground Coat Dips
2-Bakes
3-Finish Coat Dips
4-Bakes
5-Delivers

With but 1 man to feed and remove the work, this Rockwell completely automatic dip and bake oven delivers 24 finished cutlery pieces per minute, ready for assembly.

Conveying, dipping and electric recirculation heating systems are integrated, synchronized and controlled to provide uniform, flawless results.

This is one of many such "package" oven units Rockwell builds for products finishing.

What's your problem?



Cutlery pieces are lowered into dip tanks, drained and baked in this continuous conveyor electric oven. Space—only 42 sq. ft.

W. S. ROCKWELL COMPANY
2028 ELIOT STREET • FAIRFIELD, CONN.

For more data circle 369 on Postpaid Card

IN AND OUT

Is All It Takes To —

• DRY

• PROTECT

For those plating silver, brass, or copper —

Merely out of the last hot water rinse, and in and out of Nikolas **Water Dip Lacquer,** removes all traces of water and deposits a durable transparent coating that will resist fingerprinting, tarnishing and mild scratches that have previously involved unnecessary rejects.

For those using plated parts in production —

Parts finished with Nikolas **Water Dip Lacquer** assure you of untarnished parts, less rejects, and the necessity of ultra careful handling. If the final operation calls for soldering, no preparation is necessary, as the coating provides a chemically clean base metal that assures perfect bonds.

FOR COMPLETE INFORMATION ON

WATER DIP LACQUERS

CALL, WIRE OR WRITE

G. J. NIKOLAS & CO., INC.

Manufacturers of Finest Lacquers Since 1890

2880 WASHINGTON BLVD.
BELLWOOD, ILLINOIS

33 GRAND ST.
BROOKLYN, N. Y.

For more data circle 370 on Postpaid Card

ductility and tensile strength.

Applications: As a moisture barrier in insulating compositions, the zinc foil has the advantage of adhering to bitumastic materials better than most metallic foils; zinc foil can be easily soldered, and can be printed on; the foil will sell at a lower price per square foot than copper foils. When in commercial production, the zinc foil will probably be cheaper than comparable aluminum foil, it is stated.

Developer: American Smelting and Refining Co. Pilot plant quantities are now being produced.

For more data circle 17 on Reader Service Card

★ ★ ★

Dust Collector Bags

Description: Filter bags for Sly Dynaclone dust collectors are now made in three sections. This design is said to increase life of the bags, reduce erection time and make inspection easier. The recently introduced "Resist-O-Wear" bags are standard equipment on all new Sly Dynaclone dust collectors. Existing units can be converted to use the three-section bag.

The bags are divided into three sections by two seams sewed into the bags lengthwise. Each section contains two rubber-coated spacers, making a total of six per bag. Spacer weight is thus distributed on three seams, minimizing strain.

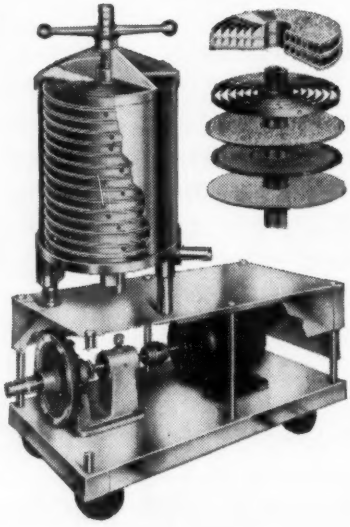
Simplified design of the bag reduces assembly time, the manufacturer states.

The Resist-O-Wear bags are

To page 114→

ELIMINATE COSTLY PLATING REJECTS

due to pitting or rough deposits!



Sectional view of "Sealed-Disc" filter and pump unit. Portable or fixed installations are available in a wide range of capacities.

The Alsop Method of "SUB-MICRON" filtration assures you of totally clean plating solutions at all times with no interruption in your plating cycle! *All* impurities are automatically removed as fast as they are formed or introduced.

ALSOP

FREE! Your guide to better plating. "The Use of Filters in Electroplating" by J. B. Mohler

ENGINEERING CORPORATION
1310 Keen St., Milldale, Connecticut

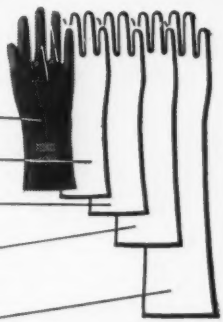
For more data circle 371 on Postpaid Card

These Stanzoil® Milled Neoprene Gloves

. . . Guarantee Positive Liquidproof Protection in 103 Basic Oils, Acids, Caustics, Greases, Solvents

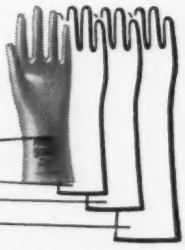
Black All Neoprene Stanzoils With Non-slip Grip

Model	Weight	Fingers	Length
N-31	Light	Straight	10½"
N-35	Light	Curved	10½"
N-32	Medium	Straight	11"
N-36	Medium	Curved	11"
N-41	Heavy	Straight	12"
N-44	Heavy	Curved	12"
N-51	Heavy	Straight	14"
N-33	Light	Straight	14"
N-54	Heavy	Curved	14"
N-71	Heavy	Straight	18"
N-73	Light	Straight	18"
N-74	Heavy	Curved	18"



White All Neoprene Stanzoils With Smooth Finish

Model	Weight	Fingers	Length
N-30	Light	Curved*	10½"
NW-31	Light	Straight	10½"
NW-32	Medium	Straight	11"
NW-41	Heavy	Straight	12"
NW-51	Heavy	Straight	14"
*Non-slip			



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The PIONEER Rubber Co., 285 Tiffin Road . . . Willard, Ohio

Please send me:

- ☐ 1958-59 Pioneer Industrial Glove Catalog
- ☐ 17"x 22" Full Line Glove Wall Chart
- ☐ Job Description Form For Free Hand Protection Analysis

Firm _____

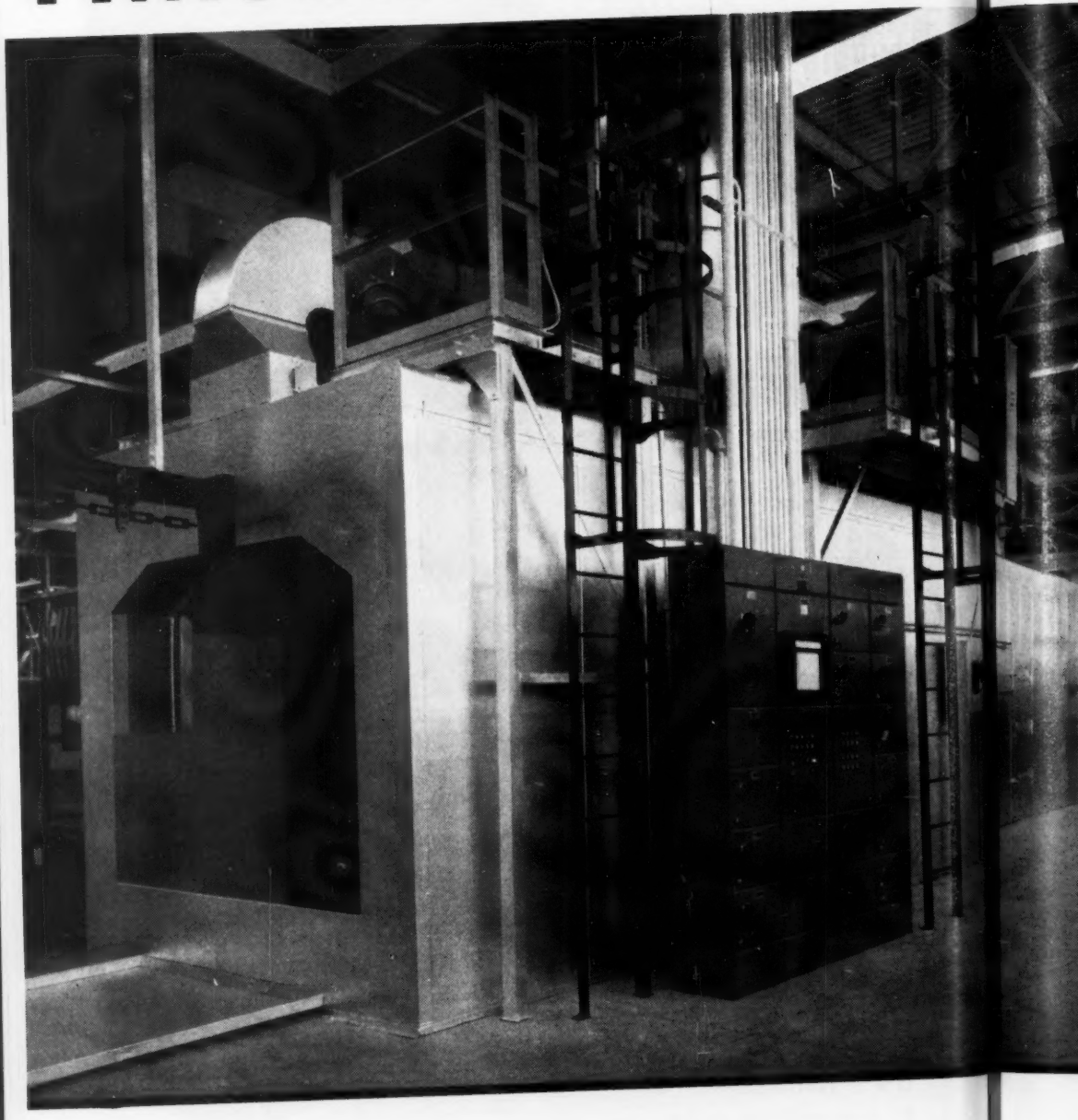
Address _____

City _____ Zone _____ State _____

Requested by _____

For more data circle 372 on Postpaid Card

FINISHING SYSTEMS...



For more data circle 373 on Postpaid Card

MODERN PRODUCTION FINISHING METHODS Require ULTRAMODERN FINISHING EQUIPMENT!

The function of the modern Dry-Off Oven, illustrated at the left, is to thoroughly dry miscellaneous metal parts after passing through the Cleaning and Rust Proofing Machine in a Complete Mahon Finishing System installed in an Automobile Parts Plant.

When you have a finishing problem, you, too, will want to discuss methods, equipment requirements and possible production layouts with Mahon engineers . . . you'll find them better qualified to advise you, and better qualified to do the initial planning and engineering which is so vital to a properly coordinated production finishing system.

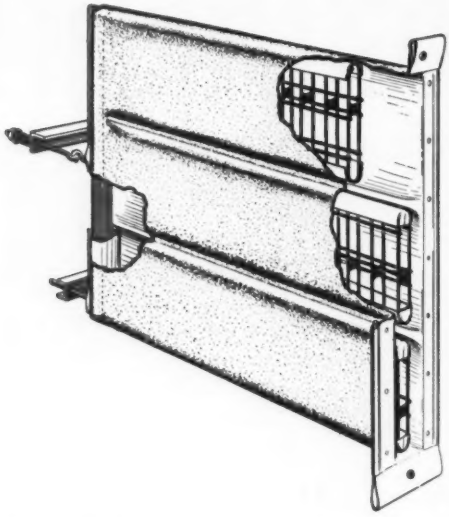
THE R. C. MAHON COMPANY • Detroit 34, Michigan

SALES-ENGINEERING OFFICES in DETROIT, NEW YORK and CHICAGO

Engineers and Manufacturers of Complete Conveyorized Finishing Systems: Metal Parts Washers, Metal Cleaning and Rust Proofing Machines, Conveyorized Cleaning and Pickling Machines; Dry-Off Ovens, Spray Booths, Electrostatic Spray Enclosures, Flow Coaters, Dip Coaters, Finish Baking Ovens, and Paint Stripping Equipment; Core Ovens, Soldering Ovens, Heat Treating and Quenching Equipment for Aluminum and Magnesium; Dust and Fume Control Installations, and Many Other Units of Special Plant and Production Processing Equipment.

See Sweet's Plant Engineering File for Information and Typical Installations or Write for Catalogue A-658

MAHON



Sly Three-Section Dust Collector Bag

made of special cotton sateen cloth, with 104 by 68 thread count per square inch to permit free passage of air, while retaining dust. Each bag has a net effective cloth area of 22 square feet.

Descriptive literature on these bags is available from the manufacturer.

Manufacturer: W. W. Sly Manufacturing Co., 4784 Train Ave., Cleveland 1, Ohio.

For more data circle **18** on Reader Service Card

★ ★ ★

Surface-Preparation Machines

Description: Compact automatic metal-processing lines recently introduced by the Metal Processing Department of Pennsalt Chemicals Corp. wash, rinse, coat and dry steel plates or blanks at processing speeds from 30 to 80 feet per minute. Can be used for applying drawing lubricant; for phosphatizing; and for other metal surface treatments.

Conveyor widths: 20 to 72 inches. Roll spacing permits handling of

for the "Solution to your Plating Problems" . . . . come to

JELCO

Get the Brightest Nickel ever—right out of the barrel!

BARREL NICKEL BRIGHTENER

Use in present regular solution with standard equipment

One of America's leading manufacturers
- BRASS Additive
- COP-BRITE
- BARREL COPPER Brightener
- BARREL NICKEL Brightener

- Maximum brightness —with minimum solution control
- Single addition agent
- For use in Hot or Cold solutions
- Highly ductile deposits —excellent throwing power

A Proven Process!

Used successfully by job platers and manufacturers

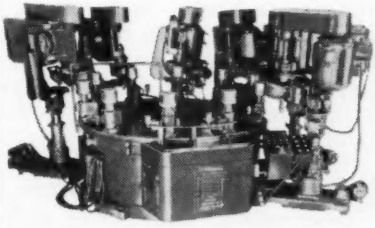
Non-Critical
Boosts Production
Cuts Rejects

For technical information, complete details and prices . . . write to

JELCO Finishing Equipment Corp.
153 East 26th Street, New York 10 • Phone LExington 2-3055

For more data circle 374 on Postpaid Card

Modern mass production methods demand speed, efficiency, and economy in finishing operations. PACKER-MATIC'S completely automatic polishing, buffing, and deburring machines are engineered to handle any type of production finishing problem. Let Packer show you how long runs, short odd lot jobs or a mixture of both can be handled with fast, low cost, more uniform results. Send blueprints or sample parts and let our engineers recommend a PACKER-MATIC to meet your requirements, or write today for more complete information.



*The bright touch on housewares is just one of many successful PACKER-MATIC applications.

PACKER-MATIC

THE PACKER MACHINE COMPANY • MERIDEN, CONN.

Pioneer Manufacturers of Automatic Polishing and Buffing Machines

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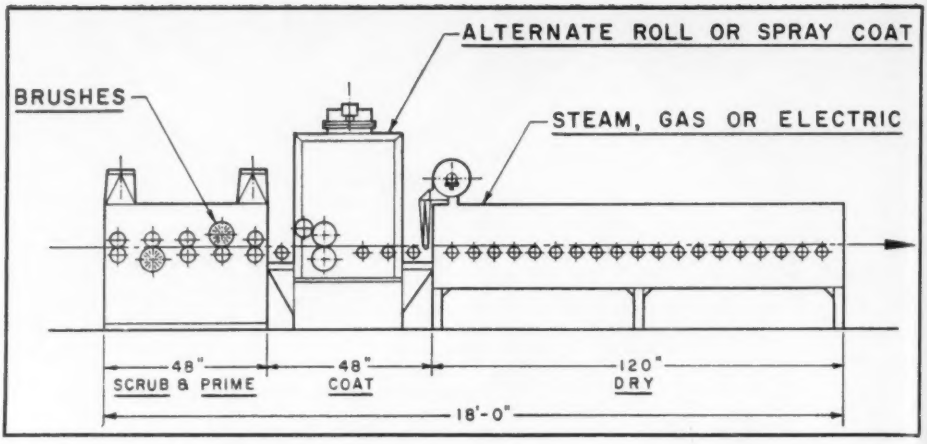


Pennsalt's Coating Applicator: for cleaning and applying conversion coatings and lubricants

sheets with minimum length of 30 inches; special spacing allows use of sheets down to 22 inches wide.

The complete processing line consists of a scrubbing and priming section, a coating section, and a drying section. Sheets move through the system automatically on a roll conveyor. Coatings are applied by roll or spray.

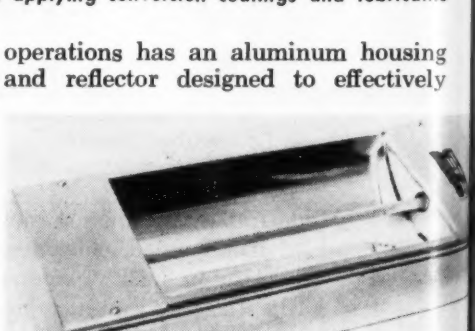
Manufacturer: Metal Processing Dept., Pennsalt Chemicals Corp., 3 Penn Center, Philadelphia 2, Pa.

For more data circle **19** on Reader Service Card

★ ★ ★

Infrared Oven Section

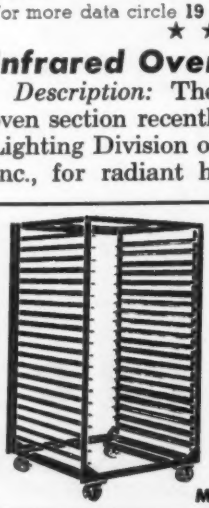
Description: The R-600 infrared oven section recently developed by the Lighting Division of Safety Industries, Inc., for radiant heating and baking operations has an aluminum housing and reflector designed to effectively



R-600 Quartz Infrared Oven Section

utilize a special quartz-enclosed nichrome heating element. This gasless

To page 120→

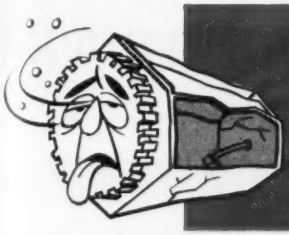


USE WILDER RACK TRUCKS

FOR
INCREASED PRODUCTION
AND
GREATER OVEN CAPACITY

Write for further information.
WILDER MFG. CO., INC.
DEPT. H
MECHANIC ST. & ERIE R.R., PORT JERVIS, N. Y.

For more data circle 376 on Postpaid Card



"DON'T GET CAUGHT WITH YOUR PLANTS DOWN!"

Have UDYLITE *repair, replace plating barrels NOW... at low cost!*

Get ready today for tomorrow's upswing in business! Have your plating facilities geared to peak performance . . . avoid the risk of costly down time during peak periods of production. Take inventory of your equipment needs . . . and the condition of your plating barrel equipment. Then let your Udylite sales engineer give you on-the-job quotations for repairs or replacements. When your equipment is sent to Udylite . . . you are guaranteed a definite return delivery date. A special department handles your order all the way through . . . costly down time is kept to an absolute minimum.

REPAIRS OR REPLACEMENTS BY UDYLITE OFFER THESE ADVANTAGES:

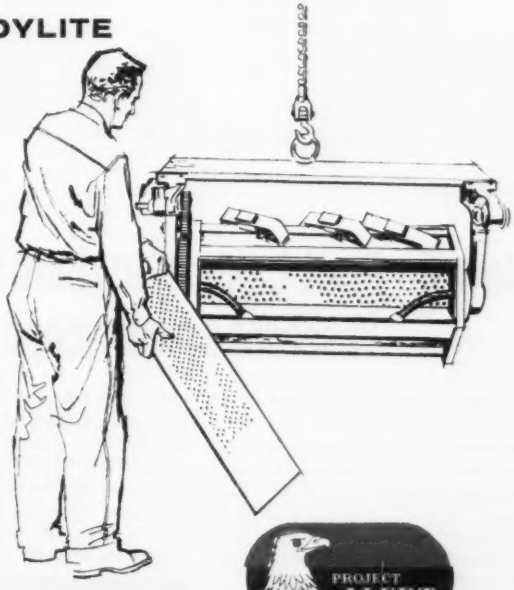
1 IMMEDIATE QUOTATIONS given by Udylite salesman right in your shop!

2 ALL REPAIRS or REPLACEMENTS WITH GENUINE UDYLITE PARTS! You're assured of finest Udylite engineering, highest quality!

3 PARTS FACTORY INSTALLED by trained barrel equipment specialists.

4 FAST, GUARANTEED DELIVERY of equipment sent to Udylite. Special department set up to expedite your order.

Let Udylite help you get your entire plating operation in top working order, ready to go at top capacity. Your Udylite sales engineer will soon be calling on you. But if you need priority service write, phone or wire directly to:



the udylite corporation

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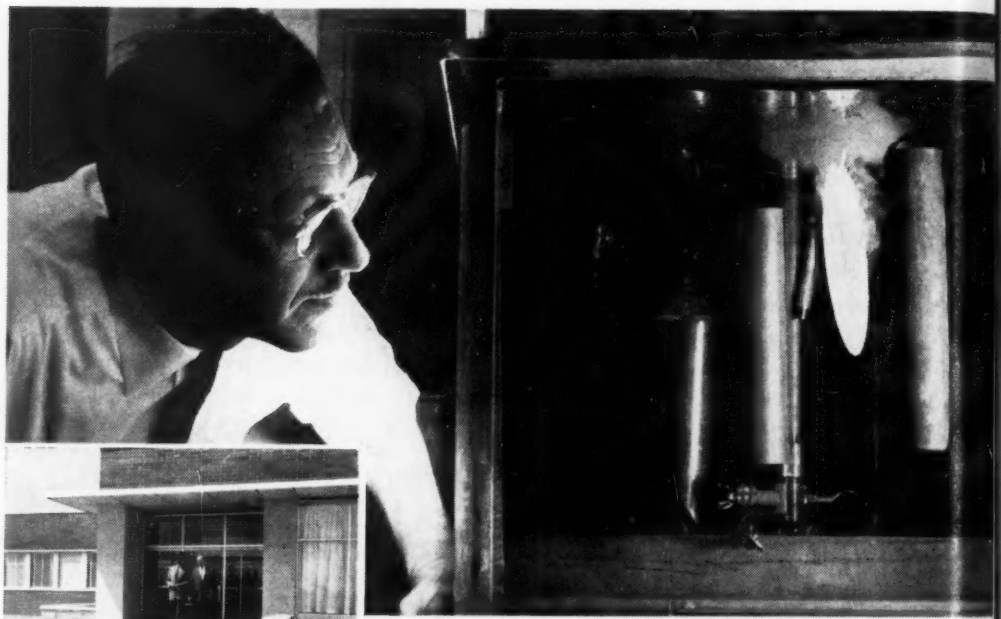
DU PONT
REG. U. S. PAT. OFF.

PRODUCT NEWS FOR



PLATING SPECIALIST AT NEW LABORATORY (above) studies copper anode corrosion in transparent plating tank. Du Pont specialists are constantly searching for new ways to improve copper-plating techniques. (Left) New $2 million laboratory houses the latest plant-scale equipment to help insure practical solutions to production problems.

New Du Pont Laboratory helps solve customer problems ...researches new copper-plating processes

Plating problems are a major consideration at Du Pont's new Sales Technical Laboratory. Here, trained specialists use full-scale plating equipment to work out practical answers that can help you improve copper-plating quality, speed production, cut costs.

Research in plating techniques and processes is another important activity at the new lab. This continuing Du Pont research has resulted in a new high-speed cyanide process for bright-copper plating on steel parts and zinc die castings. This new process has been thoroughly field-tested, and is producing high-quality results on such parts as automobile bumpers and grilles, hardware products and wire.

Another Du Pont development now undergoing tests and refinements is a new technique for plating level copper on polished-steel parts. This new process promises to eliminate unracking, buffing and cleaning prior to nickel and chromium plating on many different types of parts. The level-copper process holds considerable promise for the plating of zinc-base die castings for smoother, more uniform deposits with excellent hiding power.

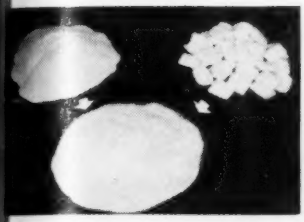
Ask your Du Pont Technical Representative for more details about these new plating developments resulting from Du Pont research, or about any of the products on the opposite page.

MODERN PLANT ASSURES DEPENDABLE SUPPLY OF QUALITY PLATING CHEMICALS

Du Pont plant at Memphis, Tenn., is now producing highest-purity sodium cyanide and potassium cyanide to meet your plating requirements. Example: Du Pont potassium cyanide is 98% minimum pure with .0003% maximum sulfides (as sulfur). You can order mixed shipments . . save time, money, storage space.

FOR BETTER COPPER PLATING

Du Pont research results in Copper-Plating Chemicals that help you speed production, improve quality



Pre-mixed for your convenience —unique Du Pont double salt

This new salt developed by Du Pont combines high-purity Du Pont Cyanobrik® sodium cyanide and copper cyanide into *one* convenient copper-plating chemical for both bath make-up and replenishment. It saves time, cuts down handling of chemicals for greater safety, reduces errors because ingredients are already in the proper proportions required by bath.

SPECIFICATIONS

Copper	28.7% min.
"Free" sodium cyanide	0.4% to 2.0%
Lead	7 ppm. max.
Sulfides as sulfur	10 ppm. max.
Insolubles	0.01% max.

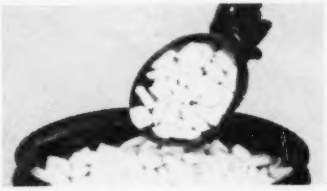
TYPICAL ANALYSIS

Copper	29%
"Free" sodium cyanide	1%
Lead	Less than 1 ppm.
Sulfides as sulfur	Less than 5 ppm.
Insolubles	0.01%

Du Pont Copper Cyanide— regular plating tests insure quality

With Du Pont Copper Cyanide your benefit is in low unit costs that result from savings in time, labor and overhead charges. For example, Du Pont Copper Cyanide readily dissolves in cyanide solutions without introducing inert salts into the plating bath. In addition, you get faster plating with high current density and rapid metal deposition.

Du Pont guarantees a copper content of 70.0% min. and a cyanogen content of 28.5% min. As a further guarantee of the quality of Du Pont Copper Cyanide, regular plating tests are conducted by Du Pont to insure maximum performance.



Du Pont Cyanobrik® now guaranteed 97% min. sodium cyanide

New high-purity "Cyanobrik" sodium cyanide specifications guarantee a higher minimum cyanide content, which can result in a lower net cost for your active cyanide. Automatically, maximum permissible impurities are lowered. This means that you get a full extra pound of active cyanide per 100 lbs. of "Cyanobrik."

You can count on the uniform high quality of "Cyanobrik" for even the most critical plating jobs. The negligible sulfide content makes Du Pont "Cyanobrik" particularly suitable for use in sulfide-sensitive electrolytes, such as proprietary bright-copper baths.

SPECIFICATIONS

Sodium cyanide	97% min.
Sodium chloride	0.2% max.
Sulfides (as sulfur)	0.0005% max.

TYPICAL ANALYSIS

Sodium cyanide	97.5%
Sodium hydroxide	0.4%
Sodium carbonate	1.5%
Sodium formate	0.35%
Sodium chloride	0.1%
Water	0.15%
Sulfides (as sulfur)	0.0004% (4 ppm.)

Drum head comes off quickly with a few turns of a wrench.

Easy-opening, reclosable drums simplify handling of "Cyanobrik" sodium cyanide

Both 100- and 200-lb. net steel drums for "Cyanobrik" sodium cyanide are nonreturnable open-head steel drums. A few turns of a wrench open the drum. It closes just as easily, giving full protection to partially used contents during storage.

FOR MORE INFORMATION about any or all of Du Pont's full line of high-quality products for copper plating, just give your Du Pont distributor a call, or write your nearest Du Pont District Office listed below.

DISTRICT AND SALES OFFICES:

Baltimore 2	321 Fallsway
Boston 10	140 Federal St.
Charlotte 1	427 W. Fourth St.
Chicago 46	7250 N. Cicero Ave., Lincolnwood
Cincinnati 2	2412 Carew Tower
Cleveland 20	11900 Shaker Blvd.
Detroit 35, 13000 W. Seven Mile Rd.	
Kansas City 20*	Guinotte & Mich. Av.
Los Angeles Box 70, El Monte, Calif.	
New York 1	350 Fifth Ave.
Philadelphia	308 E. Lancaster Ave., Wynnewood
San Francisco 4	111 Sutter St.

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heating tube emits radiant energy in the wavelength said to be most completely absorbed by water, solvents, and other industrial materials.

The element produces little visible radiation; thus it reduces glare and loss of energy in the form of light.

The heating element is said to be especially responsive to input controllers, making it useful in cycling operations and automatic installations.

Manufacturer: Lighting Div., Safety Industries, Inc., P. O. Box 70, Milford, Conn.

For more data circle **20** on Reader Service Card

★ ★ ★

Chemical-Resistant Coatings

Description: "Kel-F" halofluorocarbon dispersion coatings are said to have excellent resistance to corrosion and unusually good "release" properties.

These coatings are spray applied, produce continuous films with good resistance to a wide variety of chemicals.

Applications: Tank linings where temperatures range up to 390 deg. F. and corrosive chemicals are being processed; impellers and agitators, especially where freedom from product contamination and resistance to corrosives are important; applications where caustic - type cleaners are used to clean equipment (these coatings are said to resist the action of caustics); equipment used to process sticky, viscous materials, such as inks,

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Instant adhesion and clean strip make SHURTAPE CP-11 a "natural" for high quality finishing on wood or metal.

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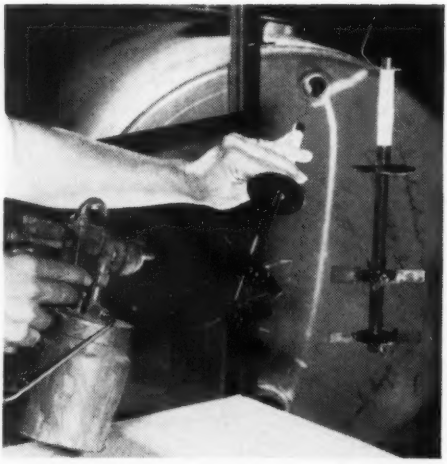


Kel-F Dispersions: for spray application; have good resistance to corrosion, chemicals.

glues, paints, greases, waxes, candies (anti-stick properties of this coating make it easier to clean up equipment that has been coated with the Kel-F dispersion, the manufacturer states); pipe sections, pumps, expansion joints, valves, reactors, forming dies, tire molds, hoppers, plate and pipe coils.

Manufacturer: Chemical Products Group, Minnesota Mining and Manufacturing Co., 900 Bush Ave., St. Paul 6, Minn.

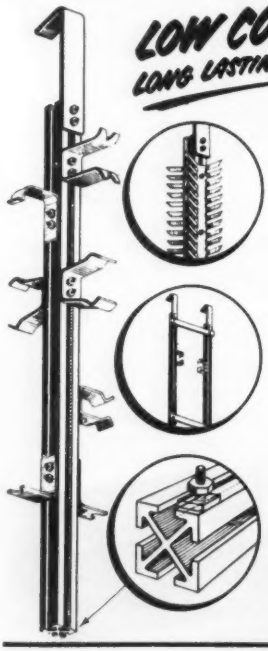
For more data circle **21** on Reader Service Card

★ ★ ★

Rhodium Concentrates

Description: Rhodium Sulfate T.P., a rhodium concentrate recently introduced by Technic, Inc., is said to produce deposits with lower stress, high purity and finer grain.

To enable prospective users to evaluate Rhodium Sulfate T.P., the manufacturer will supply a test quantity of 10 grams, with complete in-



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structions, at a special sampling price. Testing is easy, it is stated, because of the compatibility of this concentrate with existing rhodium baths.

Full data on Rhodium Sulfate T. P. is available from the manufacturer.

Manufacturer: Technic, Inc., 39 Snow St., Providence, R. I.

For more data circle **22** on Reader Service Card

High-Temperature Masking Tapes

Description: Two flatback paper pressure-sensitive tapes recently introduced by Permacel-Lepage's, Inc., are made with adhesives that are said to have excellent resistance to high temperatures, making these tapes useful in masking and holding during paint baking operations.

Both tapes (Permacel EM 3979 Hi-Temp Flatback Tape and Permacel EM 4082 Hi-Temp Flexible Flatback Tape) are made with an adhesive that will not stain or discolor enameled and lacquered surfaces.

Manufacturer: Permacel-Lepage's, Inc., U. S. Hwy. Route No. 1, New Brunswick, N. J.

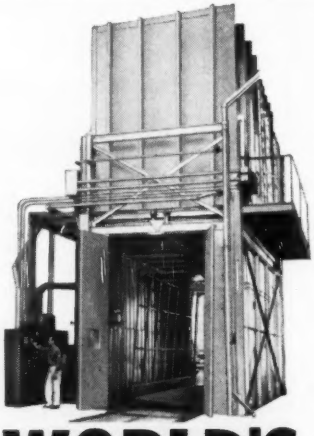
For more data circle **23** on Reader Service Card

★ ★ ★

Strip Coating

Description: Strip-Kote is a milky colored plastic emulsion that forms a transparent strippable coating. Can be used to protect wrinkle finishes, stainless steel, aluminum, other products during manufacture, and storage.

Properties: Dry film is transparent; applied by brush or spray;



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DESPATCH OVEN CO.

DESPATCH

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United States Patent No.

2,724,937

issued November 29, 1955 to George R. Churchill relates to the cloth-covered, cord sisal buffing wheel **exclusively manufactured** by Geo. R. Churchill Co., Inc. of Hingham, Massachusetts, and marketed under its trade mark "Finger-Buffs"* Reg. U.S. Pat. Off.

Geo. R. Churchill Co., Inc. intends to protect all its rights granted by this patent.

Churchill Finger-Buffs* are made from sisal or cloth; always bias-cut and top grade material; in all sizes from 3" to 21" diameters.

*Churchill Finger-Buffs, T.M. Reg. U.S. Pat. Off.

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Dept. PF-108, Hingham, Mass.

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dry film is permanently flexible; coverage: 500 square feet per gallon to deposit a 0.004-inch dried film.

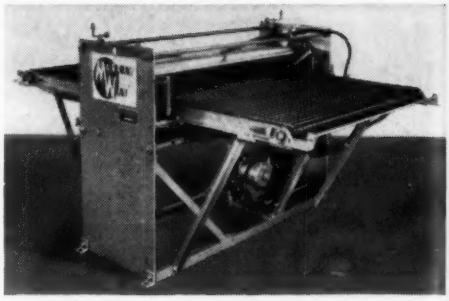
Manufacturer: Chemical Consulting Service, 3711 S. Clement Ave., Milwaukee 7, Wisconsin.

For more data circle **24** on Reader Service Card

★ ★ ★

Roller Coater

Description: Murray-Way Model C Roller Coater is designed for use as a part of conveyorized production lines.



Murray-Way Model "C" Roller Coater

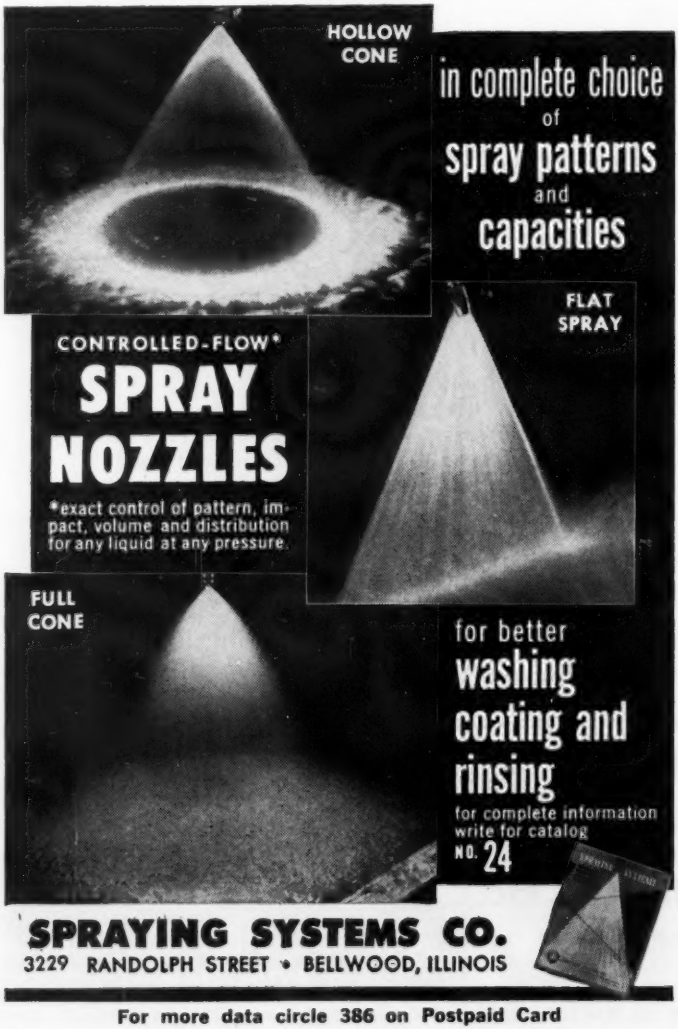
It will apply a uniform controlled film thickness of drawing compound, wax, sealer, rust inhibitor, paint or varnish to one or both sides of continuous rolls or sheets.

This unit will operate at variable speeds, can be self-powered or synchronized with automated lines. Top rolls may be fixed or hinged for cleaning ease.

A rod-type sprocket - driven conveyor is optional. Flexing occurs only in the drive chain of this conveyor, ensuring that there will be no flake-off to contaminate coatings.

Manufacturer: Murray - Way Corp., P. O. Box 180, Maple Rd. East, Birmingham, Mich.

For more data circle **25** on Reader Service Card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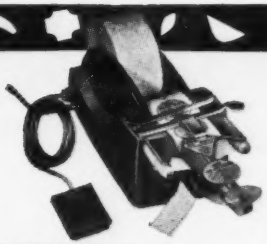

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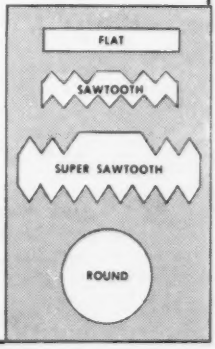

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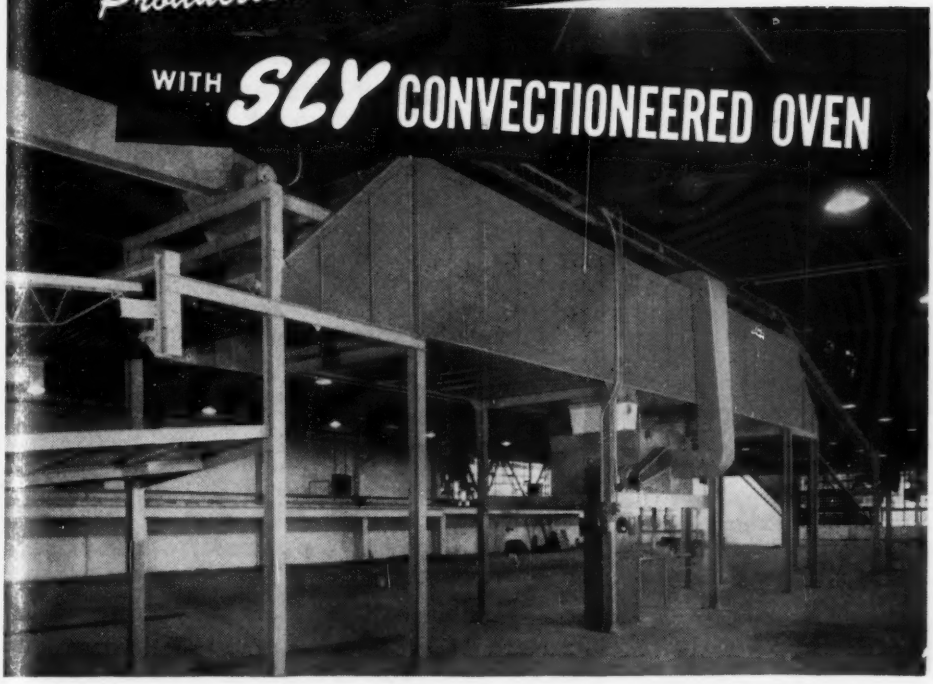

With an increase in business, the Interior Steel Equipment Co. has augmented their paint baking facilities. In doing this they have achieved economies in handling of work while maintaining and even enhancing the quality of their products.

They installed a Sly Convectioneered Oven, 45′ long, 9′ 6″ wide, 6′ 9″ high with semi "A" type sheet metal hoods at the exit and entrance ends to form an efficient heat seal. Beneath the oven is a self-contained 2,500,000 BTU per hour direct gas-fired heating unit.

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This installation is typical of the careful engineering that goes with all Sly Industrial Ovens. *May we discuss your requirements with you?*

Designers and Manufacturers of: Dust Control Systems, Blast Cleaning Equipment, Tumbling Mills, Industrial Ovens.

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OFFICES IN PRINCIPAL CITIES

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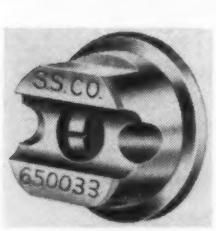
Airless Spray Nozzles



Carbide-Lined Nozzle

Description: Flat atomizing orifice tips with tungsten carbide inserts, recently introduced by Spraying Systems Co., resist abrasive solutions being sprayed.

Originally made for use with the airless spray painting process, these nozzles are also finding uses in other applications.

Tips are precision made, and are available in sizes to produce spray angles of 40, 50 and 60 degrees. Complete data is given in data sheet 0000, available from the manufacturer.

Manufacturer: Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

For more data circle **26** on Reader Service Card

★ ★ ★

Multi-Color Electrostatic Spray System

Description: A centrifugal-type "Multi-Color" electrostatic spray system recently introduced by Ionic Electrostatic Corporation produces both single-color and multi-color patterns or finishes. The system utilizes an array of variable-speed electrostatically charged centrifugal atomizers which blend coating materials to produce multi-color mixed patterns. Reciprocating and stationary models are available.

Manufacturer: Ionic Electrostatic Corp., 111 Monroe St., Garfield, N. J.

For more data circle **27** on Reader Service Card

★ ★ ★

Spray-Decorating Machine

Description: Deco Model 88 paint-

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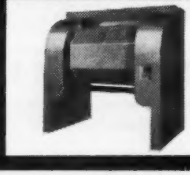

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Cleveland, Ohio

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ing machine spray decorates parts at high production rates, the manufacturer reports.

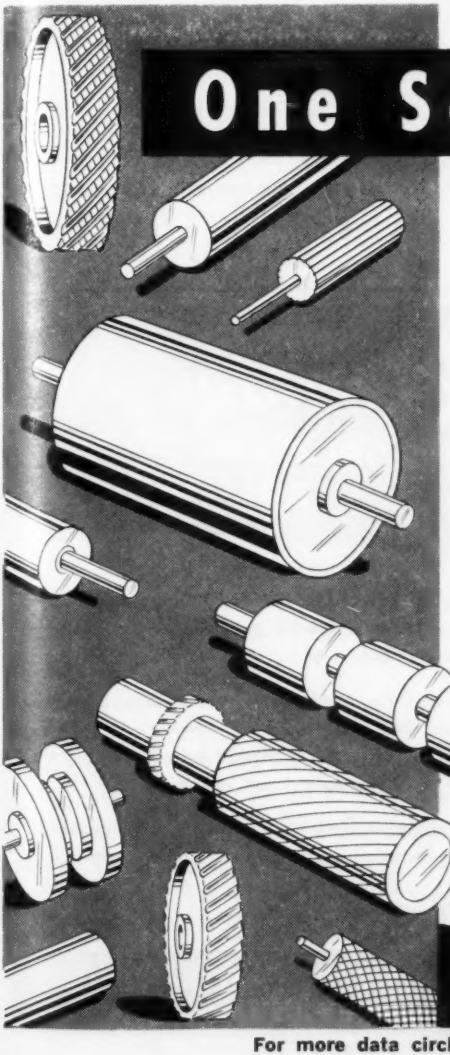
Specifications: Gun with stroke adjustable from three to eight inches; variable-speed control (44 to 88 strokes per minute); electrically driven; self-contained spray booth with exhaust; foot-pedal operated; automatic cycling available at extra cost. Requires 4½ square feet of floor space.

Manufacturer: Deco Tools, Inc., 4321 Harris St., Toledo 12, Ohio.
For more data circle **28** on Reader Service Card

★ ★ ★

Spray Gun with Fast Pattern Control

Description: A spray gun called the High-Low Spray Rod has a control on the gun that allows the operator to change the spray pattern instantly,



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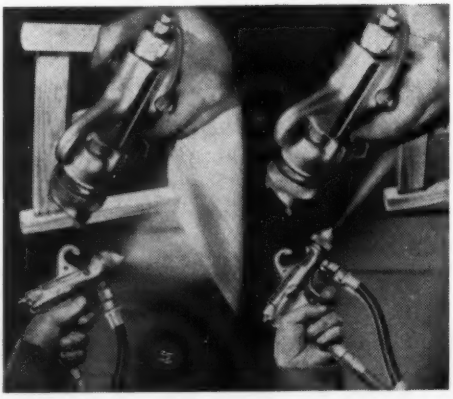

Eclipse High-Low Spray Rod: fast adjustment of spray pattern—just a flick of the finger

with a flick of his thumb or forefinger. In addition, the gun can be changed from internal to external atomization without tools, by changing nozzles. With either internal or external atomization, the spray pattern can be varied from cone to wide fan immediately.

Construction Features: Removable plunger which can be unscrewed and replaced by hand quickly; protected trigger, contained inside the handpiece, away from rough usage and dried paint; stainless steel on all critical parts and those in contact with fluid or air; easy maintenance.

Manufacturer: Eclipse Air Brush Co., 381 Park Ave., Newark, N. J.

For more data circle **29** on Reader Service Card

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

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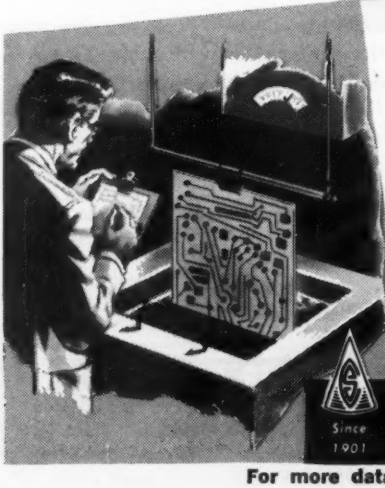

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Rhodium plating provides the advantages of whiteness, lustre and corrosion resistance of a precious metal.

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Press-Time News

Diamond Alkali Co. will build a multi-million-dollar research center just south of Painesville, Ohio...

A plastisol coating introduced by Sel-Rex Corp. comes with "Squeez-on" applicator that is useful in repairing breaks in rack coatings and other plastisol films...

Full-automatic straight-line conversion coating machine called the "Convert-O-Matic" is described in bulletin available from Hanson-Van Winkle-Munning Co. Machine is useful in blackening, phosphatizing, bright-dipping, pre-cleaning, pickling, other liquid-processing operations...

Variable, stepless control of heat produced by electric infrared ovens is achieved by electronic controllers introduced by Weltronic Corp. Any percentage of total power may be delivered by setting a single dial. Control is through electronic tubes.

A pigment with an exceptionally bright yellowish-red shade and excellent opacity has been announced by Pigment, Color & Chemical Div., Sherwin-Williams Co. Called Orion Red, it's said to have good resistance to heat and bleeding...

American Nickeloid Co. will market pre-finished brass plated steel with heavier brass plate, lower price tag, in 24- and 32-inch widths. The new coils and sheets are protected with a coating that is not damaged by fabricating operations...

Clair Manufacturing Co., Inc., has filed patent applications on a method that permits abrasive rolls to be installed or removed from Clair surface finishing machines in less than two minutes...

News of the Finishing Industry

✔company news
✔new positions
✔new plants
✔meetings

Fig. 2—Most of one wall of the lobby and reception room of the new Ransburg plant is taken up by map of the world that shows the company's sales and laboratory locations in the United States and foreign countries.

NEW PLANTS

Ransburg Opens New Plant

Ransburg Electro-Coating Corp., electrostatic spray painting equipment manufacturer, recently moved into a new building at 3939 West 56th St., Indianapolis, Indiana. The new building is part of a million and a half dollar expansion and building program.

More than 18,000 square feet of the new 80,000-square-foot plant are devoted to engineering and laboratory testing facilities. Sixteen conveyorized demonstration laboratories are available for test-painting anything from a small part to products the size of an automobile body.

Lab facilities include overhead conveyors, some with pit-mounted or ceiling-mounted reciprocating-disk units; a spindle-type conveyor with a stationary No. 2 Process disk unit; a double-loop conveyor with two Rans-

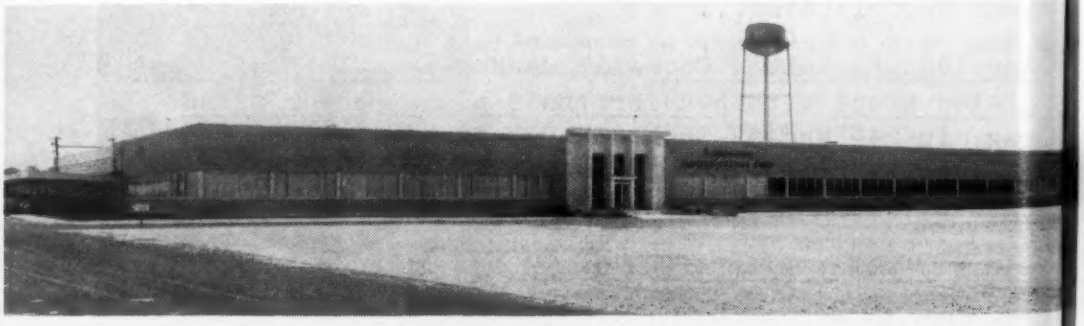

Fig. 1—Ransburg's new 80,000-square-foot building is devoted to sales and service offices and laboratories, automatic No. 2 Process equipment manufacturing, general offices.

burg disk units; one overhead conveyor line which is used for demonstrating triple-head No. 2 Process equipment; one large booth to demonstrate the No. 2 Process on big articles, such as automobile bodies, which are conveyed through the electro-spray area on a dolly. Another lab is maintained for No. 1 Process applications. Nearby are three batch-type bake ovens for baking the parts after painting.

Other technical facilities include the automatic equipment manufacturing area; a machine and welding shop, and a conference room. The "back" part of the plant includes paint mixing and stripping rooms.

In addition to the new building, Hansburg has a three-story Engineering Building in downtown Indianapolis, on West New York St. This 6[illegible],000-square-foot building is devoted to research and development, legal offices and storage.

The process of electrostatic applica-

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TYPE	SIZE	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
ROUND HEAD BOLTS	10-24	X	.12	.15	X	X	X
	1/4"-20	.16	.20	X	X	X	X
HEX HEAD BOLTS	10-24	X	.21	X	.25	X	X
	1/4"-20	.25	.30	.33	.36	.48	X
	5/16"-18	X	X	.56	.63	.75	.86
STUDS	10-24	X	.10	.11	.12	X	X
	1/4"-20	X	.12	.13	.14	.19	.22
	5/16"-18	X	X	X	.41	.53	.65

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ROUND WASHERS	3/16"	.06
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Fig. 3—Harold P. Ransburg, vice president of Ransburg Electro-Coating Corporation, at work in his new Indianapolis, Indiana, office.

Fig. 4—Small articles such as food mixer parts are test-painted in this Ransburg lab, using a spindle-type conveyor that loops around an overhead-mounted No. 2 Process disk.

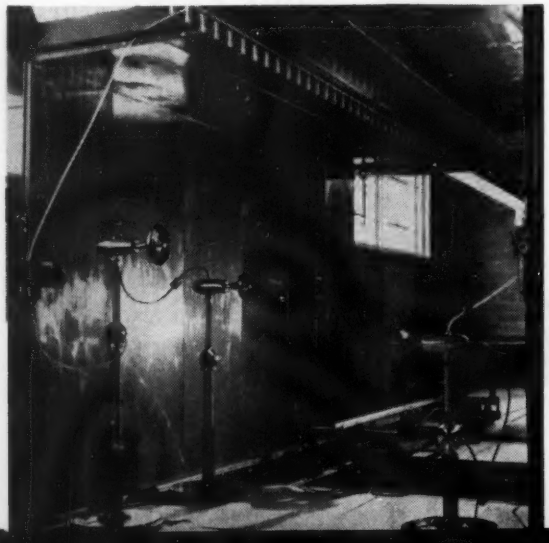

Fig. 5—One of the larger Ransburg laboratories is set up to accommodate big articles such as automobile bodies. The product to be test-painted is moved through the electro-spray area either on a floor-based dolly or on an overhead conveyor. Bell-type No. 2 Process atomizers are being used in this instance.

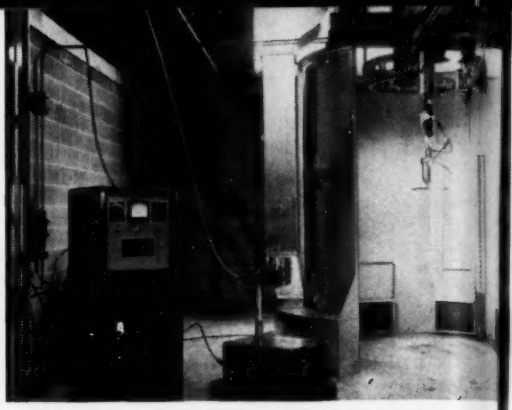

Fig. 6—Parts such as fluorescent lighting fixtures are test-painted in this laboratory, where overhead conveyor loops No. 2 Process disk.

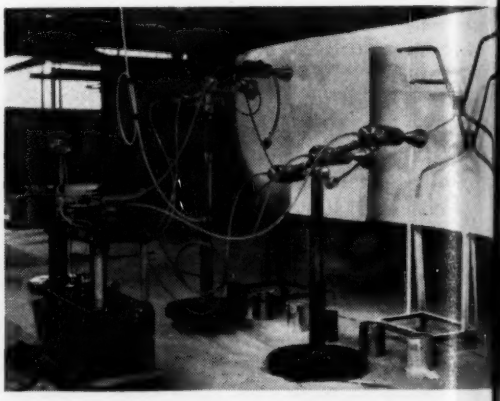

Fig. 7—Painting in the open. Two triple head No. 2 Process units with bell-type atomizers are used in this laboratory to test-paint—in this instance—parts of outdoor metal furniture.

★ ★ ★

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tion of paint was developed in the pre-World War II days by Harold Ransburg, who worked in his father's factory, the Harper J. Ransburg Co., Indianapolis manufacturer of household items, such as bread boxes, canister sets, trays and cooky jars.

To improve the company's method of painting Ransburg developed the electrostatic method of applying paint. The original process, using compressed air for atomization, is known as the Ransburg No. 1 Process.

Academically, the electrostatic spray painting process is based on the well-known principle that opposites attract each other, while likes repel. A strong electrostatic field is created

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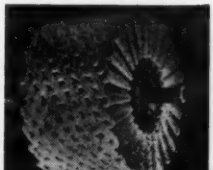

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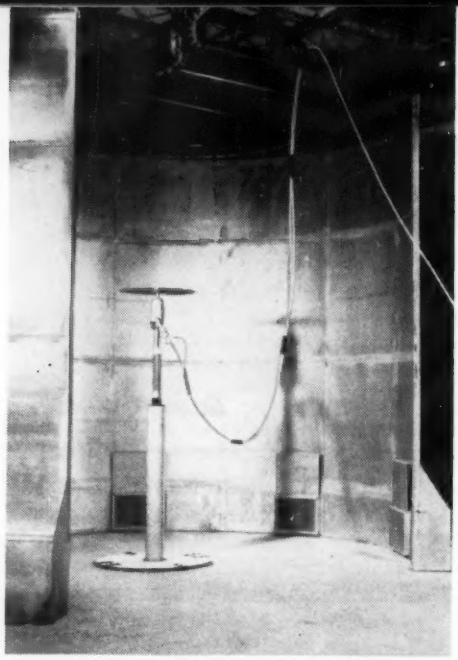

Fig. 8—In this Ransburg laboratory, the conveyor loops around a floor-mounted No. 2 Process reciprocating disk. The reciprocator stroke is adjustable to handle various lengths.

Fig. 9 — Ransburg's Engineering Building. Modernized and occupied in 1956, it provides 65,000 square feet for research and development, new products manufacturing, legal offices, and storage. (Photos courtesy Ransburg Electro-Coating Corp., Indianapolis, Indiana)

between the atomizer and the article to be painted. Force of this field transforms the coating material into a spray of fine, charged particles, creating an irresistible attraction that pulls the spray particles to the grounded article on the conveyor.

Although the equipment was developed for use in the Ransburg plant, it was soon apparent that the new method had great possibilities for other manufacturers of painted parts.

The first units used compressed air to atomize paint particles. The Ransburg No. 2 Process now being used extensively atomizes coating materials without using compressed air.

Glidden Establishes Plastics Lab

Establishment of a new plastics research and development laboratory has been announced by A. D. Duncan, Glidden vice president and general manager of the firm's paint division, in Cleveland, Ohio.

Located at Glidden's Paint Division Research Center at 12430 Elmwood Avenue, the new plastics laboratory becomes part of an overall company effort to centralize all research and development work on new products. Integrated with other research groups of Glidden's paint division, the combined groups will utilize the increasing similarities of paint and plastics to improve both lines of products.

New Plating Supply Firm in Michigan

A new company, Keystone Plating Supply Inc., has been formed in Michigan. Jack E. Keyes and Henry V. Pfeuffer, founders and co-owners, are former sales executives of Wagner Brothers Inc., Detroit.

Among the products offered by the company are Churchill buffs; Promat zinc and cadmium addition agents and conversion coatings; Grav-I-Flo tumbling materials; anodes and other fin-

ishing supplies. Keystone offices and warehouse are at 21039 Dequindre, Hazel Park, Mich.

Narda Ultrasonics Moves

Narda Ultrasonics Corporation has moved to new, larger quarters at 625 Main St., Westbury, L. I., N. Y.

Binks Moves New York Office

Binks Manufacturing Company, maker of spray painting equipment and commercial cooling towers, has moved its New York office to a newer, larger building at 35-42 41st St., Long Island City 1, N. Y.

The new location will be used for warehouse, service and offices.

Abrado Finish Corporation Expands Plant, Markets

Abrado Finish Corporation, Grand Rapids, Mich., manufacturer of barrel finishing equipment and supplies, recently added over 10,000 square feet of new offices, laboratories and manufacturing facilities to its plant.

The expansion is part of a program to expand the company's business from the midwestern area formerly served to national markets.

Founded in 1954 by Wallace L. Reed as the Grand Rapids Tumbling Supply Corp., Abrado recently assumed its present name and appointed C. Heamon Castle executive vice president and technical director. Mr. Castle has devoted 25 years to process development for the finishing industry, is author of several technical papers on barrel finishing.

Abrado President Wallace L. Reed states that his expanded facilities and staff will improve customer service and provide answers to many barrel finishing problems.

In addition to Messrs. Reed and Castle, Abrado personnel include John Mulder, vice president; Ken Martinus, plant manager; George Thompson,

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Fig. 1—Abrado Finish Corporation's new 10,000-square-foot plant addition in Grand Rapids, Mich., includes general offices, warehouse, technical and process development laboratory.

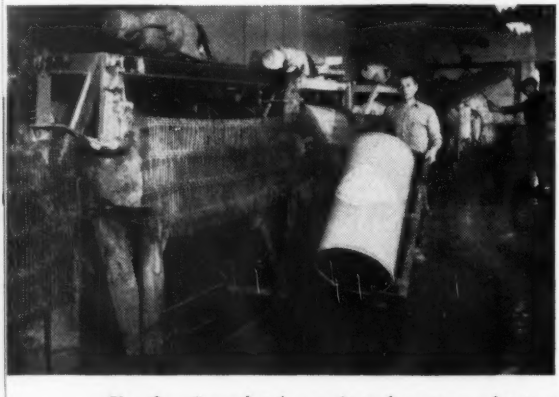

Fig. 2—Completely equipped process plant at Abrado Finish Corporation performs custom, contract and experimental finishing work.

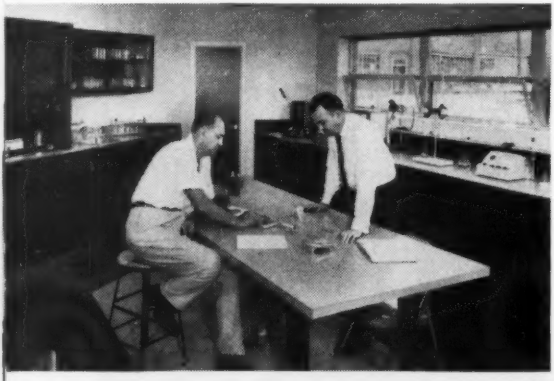

Fig. 3—Wallace L. Reed, president of Abrado Finish Corp., and C. Heamon Castle, vice president and technical director, discuss a finishing problem in company's new process development lab. (Photographs courtesy Abrado Finish Corp., Grand Rapids, Mich.)

processing supervisor; and Clare Vander Sloot, sales engineer.

Abrado now supplies compounds and media for barrel finishing, is developing several finishing equipment and accessory items. The company will soon introduce a new spindle-type finishing machine called the Abrado-Matic, Technical Director Castle states.

To market its new products and services, Abrado is now in the process of establishing distributors throughout the United States.

COMPANIES

New Compounds Featured by Oakite at Western Tool Show

New compounds for electrocleaning and paint stripping will be featured by Oakite Products, Inc., in Booth 735 at the Western Tool Show in Los Angeles, September 29 to October 3.

The new electrocleaner is Oakite Composition No. 190, designed to provide greater conductivity and surface activity in the anodic cleaning of heavily smutted steel. The stripping compound is Oakite Stripper SA, a solvent-acid type compound which removes epoxy resins and other tenacious finishes in a soaking operation.

Oakite will also demonstrate barrel finishing compounds, the Oakite Crys-Coat Process of phosphatizing and Oakite ChromiCoat for the conversion coating of aluminum.

J. C. Leonard, manager of the company's South Pacific Coast Division, will be in charge of the booth. He will be assisted by technical service representatives J. B. Blackburn, J. Q. Jones, G. U. Mishler, C. A. Petersen, J. A. Prevel, P. V. Rodgers, T. A. Rohlfsen, J. E. Spratt, R. R. Webb, L. B. Nerheim, and J. C. Mullarkey.

Conforming Matrix to Display at Plastics Show

Conforming Matrix Corporation, Toledo manufacturer of electroformed masks, mask washing machines and automatic spray decorating machines, will exhibit in Booth 614, National Society of Plastics Industries Exposition, November 17-21, in Chicago.

Narda Introduces 500-Watt Ultrasonic Cleaner at Metal Show

The Series 5000 Narda SonBlaster ultrasonic cleaner, developed by The Narda Ultrasonics Corporation for large-volume cleaning operations, will be shown publicly for the first time at the National Metal Exposition, in Cleveland, October 27-31.

The Narda unit features a generator with 500 watts output, plus a fully transducerized 10-gallon tank.

Series 5000 Narda SonBlaster: for ultrasonic cleaning of metal parts

Lacquer Information Center at Paint Industries' Show

The Paint Industries' Show, to be held at Cleveland Public Auditorium on October 5-8 will include a Lacquer Information Center. Participating sponsors of the 1958 Center are Columbian Carbon Co., Enjay Co., Inc.,

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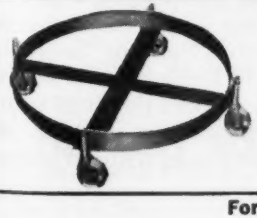

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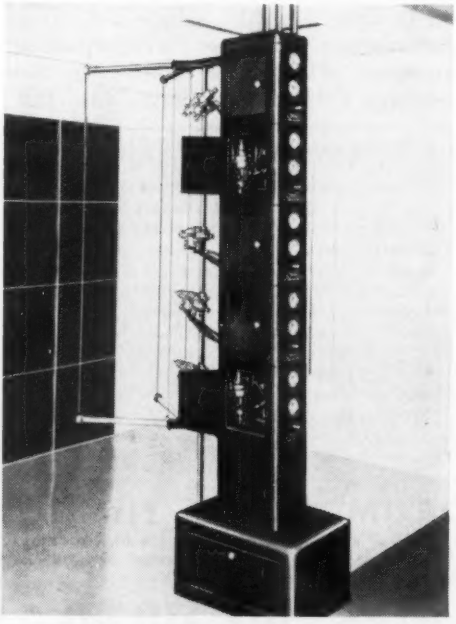
Binks to Display at Metal Show

Binks Manufacturing Company, Chicago manufacturer of spray painting equipment, will display some of its latest products at the National Metal Show and Congress, October 27-31, in Cleveland, Ohio. The company's display will occupy booth No. 1501.

Included in the display will be the Binks Modular Electrostatic spray painting units, rotary automatic spray painting equipment with electric timers and conveyor, a new paint heater and Kayo and Pogo series paint pumps delivering paint at a 2 to 4-1 ratio.

Representing Binks at the show will be Burke B. Roche, president, W. W. Roche, sales planning director, B. J. Hedger, sales manager, W. T. Kernan, sales promotion manager, C. T. Rood, Cleveland branch manager and James Rice, manager of the company's Electrostatic Division.



Binks Modular Electrostatic spray painting units will be on display at Metal Show

Screen-Process Drying Units to be Featured in Year 'Round Display

Advance Process Supply Co., Chicago manufacturer of silk screen equipment and supplies, will formally open a permanent display of its equipment on October 13.

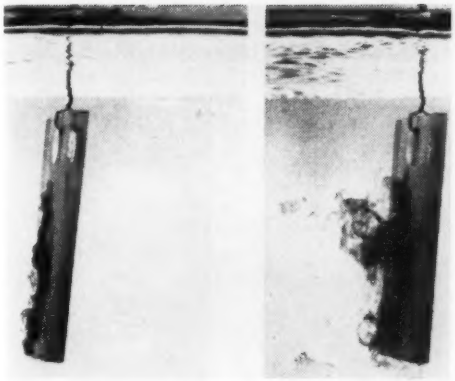
The display will be introduced with an open-house, which will continue through October 14. This exhibit will feature drying and roller coating equipment in operation, with sample-run demonstrations.

Highlighting the display will be demonstrations of the Advance Auto-Jet Turbo Dryer and Auto-Rack Wicket Dryer. The Auto-Jet is useful for drying such items as coated lenses, lacquer-coated sheet stock, coated and treated wood, masonite, siding, paper, cardboard, textile, printed circuits, boxes, and so on. The Auto-Rack is used for heat-sensitive stocks and longer-drying inks and paints.

The display is at Advance's new office, 2315 W. Huron St., Chicago 12, Illinois.

Branson to Use Transparent Tank for Ultrasonic Demonstration at Metal Show

Branson Ultrasonics Corporation will use a transparent tank to show visitors at the National Metal Exposition & Congress (Cleveland, October 27-31) how ultrasonic energy cleans. Parts soiled with grease or insoluble contaminants will be immersed in the plastic tank. As soon as power is turned on, soils will visibly explode off plastic and metal pieces without harming them.



To record what happens when ultrasonic energy is used for cleaning, high-speed camera was trained on a soiled glass plate. At left is the sample one second after Branson ultrasonic generator and transducer have started to deliver 38-kc vibrations to cleaning tank. Two seconds more, (right) and almost all contaminants have been removed

Energy for the cleaning action will be supplied by a 500-watt Sonogen Model AP-100 ultrasonic generator.

Other recent developments to be shown are a self-contained ultrasonic cleaner on wheels (Model R-50), and the Model C-100 series, a five-cabinet cleaning system which includes a generator, 12-gallon cleaning tank, filter, rinse, and dryer tanks.

Branson will also exhibit two ultrasonic resonance gages, the Model 14 and Model 21 Vidigage. These instruments measure metal or plastic thickness instantly.

Messrs. Peter K. Bloch, Norman G. Branson and other representatives will be on hand at Booth 1110 to answer questions on ultrasonic cleaning and testing. Visitors' samples will be cleaned on request.

Wyandotte to Display at Metal Show

"The best in chemical products for metal finishing" will be the theme of Wyandotte Chemicals' J. B. Ford Division exhibit at the National Metals Exposition in Cleveland October 27-31.

Wyandotte will feature Bufsol, a water-soluble buffing compound remover; Nordall, a spray cleaner with rust protective properties; and chemical products for imparting modern finishes to aluminum alloys.

Other products to be featured include electrocleaners for the plating industry, paint preparation and paint

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department maintenance chemicals, and Zorball, a floor absorbent.

Attending the exhibit in Booth 2609 will be P. N. Burkard, manager, Industrial, Railroad and Aircraft Department; E. J. Kubis, manager, Industrial Sales; F. A. Troxell, manager, Cleveland Sales District; Gene Nutting, Technical Service Department; Industrial Representatives Steve Johnson, Sam Peek, and Charlie Masek (Cleveland); Walt Mazan (Toledo); Harry Flister (Pittsburgh); John Pusey (Rochester, N. Y.); and Ron Lang (Detroit).

Mearl Corporation Celebrates 25th Anniversary

Harry E. Mattin, founder and president of The Mearl Corporation, Osinning, N. Y. producer of natural and synthetic pearl essence, started his business 25 years ago with a staff of two people.

Mearl has grown to be the world's largest producer of synthetic pearl essence, now employs 40 people in its research lab alone. Mearl developed a synthetic pearl essence which it calls "Nacromer." This product is widely used in producing pearlescent finishes.

The company now operates three plants, also has offices in London, Frankfort, Amsterdam, Paris, Milan and Osaka, has representation in practically every country in the world.

NEW POSITIONS

John D. MacKenzie has been elected chairman of the board of **American Smelting and Refining Company** to fill the vacancy caused by the death of the late Kenneth C. Brownell. Mr. MacKenzie will continue as president of the company.

Mr. MacKenzie also serves as a director of Revere Copper and Brass, Inc., General Cable Corporation, Southern Peru Copper Corporation and Western Phosphates, Inc. He is a member of the executive committee of Revere and General Cable.

James L. Whalen

John D. MacKenzie

James L. Whalen has been promoted to vice president and sales manager of **Eclipse Air Brush Company,** manufacturer of spray equipment.

Mr. Whalen has been associated with Eclipse for more than eleven years. He has been sales manager since 1954.

★ ★ ★

George M. Seib, formerly secretary of **Oakite Products, Inc.,** has been appointed vice president of the company. **Erwin H. Steif,** who was Mr. Seib's assistant, has been promoted to the post of secretary.

With Oakite since 1922, Mr. Seib

Erwin H. Steif

George M. Seib

has been a member of the board of directors since 1946, and has served as secretary since 1953. Mr. Steif, a graduate of Yale Law School, joined Oakite in 1948 as legal counsel, and has served on the board of directors since 1953.

★ ★ ★

Russell Miller has been appointed director of research by **Promat Division of Poor and Co.,** Waukegan, Ill. manufacturer of brighteners, chromates, cleaners and other products for the finishing industry.

Mr. Miller had been in charge of the Central Division of Stewart Warner Corporation's polishing, buffing and plating units until he began his new assignment with Promat.

Russell Miller

J. M. Price

Amchem Products, Inc. (formerly American Chemical Paint Company) has appointed **Jack M. Price** assistant sales manager of the Metalworking Chemicals Division.

Mr. Price originally joined Amchem as a sales representative in the New England territory. In 1954 he was appointed assistant manager, Eastern District and moved to the home office in Ambler, Pa. In May 1956 he was transferred to the Central Sales Staff, also in Ambler, as assistant to the sales manager.

★ ★ ★

Dr. Clarence Bremer, formerly director of research, has been appointed technical director of **Oakite Products, Inc.,** manufacturer of industrial cleaning and metal treating materials. Dr. Bremer will be responsible for the company's research, product development, service laboratories.

★ ★ ★

G. J. Williams succeeds **Donald L. Gibb** as sales manager of **The Dow Chemical Company's** Plastics Department. Mr. Williams has been assistant to Mr. Gibb since 1956.

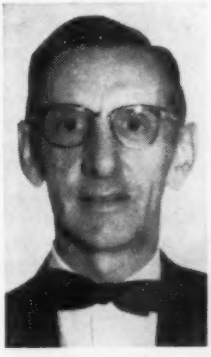
Mr. Gibb will continue his association with the company's sales department as a special consultant.

Dr. William H. Schuette, general manager of the Midland Division, **The Dow Chemical Company,** has been elected a vice president. He will continue his duties as division general manager.

★ ★ ★

Robert Izzett has been appointed midwestern regional sales manager of **Neilson Chemical Co.,** Detroit manufacturer of materials for phosphatizing, cleaning and preparing metals for painting.

He will supervise sales in Iowa, Illinois, Wisconsin, Minnesota and northern Indiana.



Ernest D. Carr

Robert Izzett

Ernest D. Carr has been appointed a sales engineer in the Metal Finishing Division of **Frederic B. Stevens, Inc.,** Detroit manufacturer of metal finishing equipment and supplies. Mr. Carr will represent the company in Maine, Vermont, Massachusetts, Rhode Island and New Hampshire.

Edward H. Miller has been appointed research director for **O'Brien Corporation's** Industrial Finishes Division.

Mr. Miller comes to O'Brien with over twenty-two years of experience in paint research. He was formerly employed by Roxalin Flexible Finishes of Elizabeth, N. J., and by Midland Industrial Finishes of Waukegan, Illinois.

Edward H. Miller

George L. Guymon

George L. Guymon, for the past seven years vice president and director of sales for **Industrial Filtration Company,** Lebanon, Indiana, manufacturer of Delpark Industrial Filters has retired.

Industrial Filtration recently became a part of Commercial Filters Corporation, now operates as Indiana Commercial Filters Corporation.

Mr. Guymon, well known in the industrial and metalworking field since 1939, is one of the outstanding engineering and sales executives in the filtration field.

★ ★ ★

Four key executives have been promoted by **Diamond Alkali Company,** Cleveland, Ohio.

William H. McConnell, vice president-sales since 1953 and a veteran of 30 years' service in sales work with the company, becomes vice president-marketing.

Henry B. Clark, general manager of Diamond's Soda Products Division for the past two and a half years, is now director of sales, a newly created position.

John W. Mantz, general manager of the Silicate, Detergent, Calcium Division since its formation in June 1954, becomes general manager of the Soda Products Division. These two divisions have been combined into a single unit, which will henceforth be known as the Soda Products Division.

Diamond also announced establishment of an International Division. Named general manager of this new division is **Samuel S. Savage,** who has been director of export sales.

MEETINGS

Vacuum Coaters Fall Meeting, Technical Conference

The Society of Vacuum Coaters will hold its Fall Meeting and Technical Conference on November 5-6 at the Hotel Statler in Detroit, Mich.

The program includes a business meeting and a technical program of interest to people who employ vacuum coating for functional and decorative purposes. T. J. LaBounty, president of the Society of Vacuum Coaters, will give the opening address.

Technical papers to be presented include *Maintenance Problems in Vacuum Coating Systems,* by J. P. MacNeil, National Research Corp.; *Selection of Oven Equipment for Vacuum Coaters,* by Herman C. Gehnrich, Gehnrich & Gehnrich, Inc.; *Glow Discharge Cleaning,* by John Smith, Consolidated Electrodynamics Corp., Rochester Div.; *An Analytical Method of Leak Determination in High-Vacuum Systems,* by A. Schlafmitz, Vacuum Metalizing Corp.; *Functional Coatings — Techniques of Reproduction, Monitoring and Evaporation,* by Dave Baum, Vacuum Equipment Div., The New York Air Brake Co.; *Dip Dying of Finishes for Vacuum Metalizing,* by B. Perkel, Jema-American; *New Coating Developments for Vacuum Metalizing,* by J. Scharnberg, Logo, Inc.

TRAINING COURSES

Plating Course at Temple Technical Institute

Principles and Practice of Electroplating will again be taught this year at Temple Technical Institute Evening School, 1808 Buttonwood St., Philadelphia 30, Pa. The course began on September 29, ends on January 26, is held every Monday evening during this period.

Dr. Samuel Heiman of the Philadelphia Rust-Proof Co. and Henry Fenster of the American Leonic Mfg. Co. will be instructors for the course. Textbooks are *Modern Electroplating* and *Electroplating Engineering Handbook.*

The course is designed to provide the student with a thorough understanding of the principles of electroplating and how these principles apply to practical situations.

The entire course covers three different semesters' work. This fall, Semester I, which previously was given in the fall of 1955, will be presented. Subjects discussed will include preparation of various metals for plating; cleaners—different types, function and theory; pickling; hydrogen embrittlement; inhibitors, bright dips, electropolishing; plating of metals including copper, cadmium, zinc, silver and others.

Laboratory sessions include practice in analysis and control of plating solutions, Hull cell testing, and selected laboratory experiments to illustrate subjects discussed.

California Plating and Printed Circuitry Courses

When Mitchell Raskin made his first white streak on the blackboard at Woodbury College in Los Angeles this September 30, he began his fourteenth year of teaching practical electroplating. Over 650 people from the finishing industry have attended Mr. Raskin's course to improve their knowledge of the finishing industry.

Teacher Raskin has something new at Woodbury College this year however: a course in *Making and Plating of Printed Circuits.* Since southern California has become one of the leading centers for manufacture of printed circuits, it is expected that this course will be well attended by local circuit makers.

Practical Electroplating is a survey course that includes a review of elementary chemistry and electrochemistry and discussion of basic factors that control electroplating. Discussions of cleaning and some of the basic plating baths include history, uses, equipment, chemical formulation, operating controls and conditions, maintenance, inspection and testing, trouble shooting and safety practices. Registration fee is $36.00. First meeting, held on September 30, is one of

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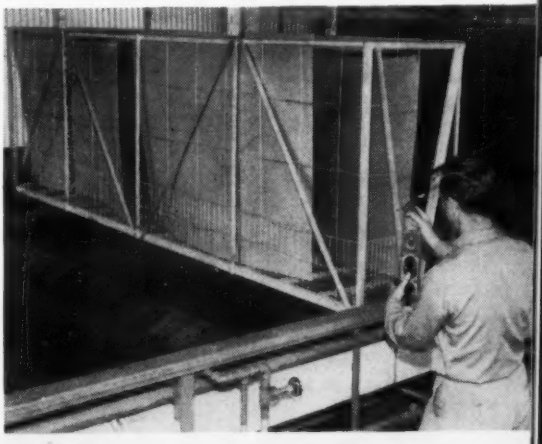

This special basket is about to carry parts into an acid tank at North American Aviation's "Chem-Mill" installation, Missile Development Division, Downey, California. It is made of "Haynes" alloy No. 25 to withstand repeated immersions in the strong etchant acids used in chemical milling. Baskets made of this alloy are used to resist the acids when either stainless steel or titanium are being chemically milled

20 weekly meetings and field trips.

Making and Plating of Printed Circuits will cover history, types, design and engineering, uses and specifications; fabrication, tooling, equipment, drilling, piercing, shaping, soldering, assembly; cleaning and preparation for plating; specific baths, including copper, nickel, tin, silver, gold, rhodium, palladium, platinum. First meeting of the class on October 2 is one of 18 weekly meetings and field trips. Fee, $36.00.

SOCIETIES

N.A.M.F. Charters Western New York Affiliate

Thirty job finishers met September 12 at the Buffalo-Statler Hotel to witness the charter presentation to the N.A.M.F. of Western New York by George W. Taylor, president of the National Association of Metal Finishers. The charter was received by Harold M. Karet, president of Keystone Chromium Corp., Buffalo, the temporary president of the 13th affiliate of the N.A.M.F.

In his address before the group, Mr. Taylor, president of Production Plating Co., Adel, Ga., said that many job shop platers are encountering serious financing problems. He explained that rapid obsolescence of equipment caused by chemical deterioration and marked improvements in automatic equipment is creating financing difficulties for many firms. Depreciation allowed by the government for tax purposes is unrealistic and too slow for an industry that has such problems, he said.

Charter-Night program chairman was Edward N. Marlette, president of Marlette Plating Co., Buffalo, a national director of the N.A.M.F. who spearheaded the organization of the N.A.M.F. of Western New York. Guests included members of the N.A.M.F. Board of Directors, who held their quarterly meeting in Buffalo during the day.

National charter is presented to Harold M. Karet, center, temporary president of the N.A.M.F. of Western New York, by George W. Taylor, left, president of the National Association of Metal Finishers. N.A.M.F. Board Member and Charter-Night Program Chairman Edward N. Marlette, right, observes.

NECROLOGY

Herbert A. Stanton

Herbert A. Stanton, 71, former president and director of Norton Behr-Manning Overseas, Inc., and vice president and director of Norton Company, died August 26 at his home in Harwichport, Mass.

Mr. Stanton began his career with Norton Company in 1912 as credit manager, retired in 1952 after serving in various executive capacities.

W. M. Fotheringham

W. M. Fotheringham, president of W. M. Fotheringham, Inc., Buffalo, New York, died on August 30. Mr. Fotheringham had long been active in the plating industry as a distributor of plating and polishing equipment and supplies. He was a member of the Buffalo Branch of the American Electroplaters' Society, contributed much to the success of the A.E.S. Buffalo Convention held in 1951. As a supplier, he was interested and active in the

Metal Finishing Suppliers' Assn.

Mr. Fotheringham was known throughout the United States and Canada. He will be remembered by many not only for his friendly counsel and assistance, but for his personal courage and determination.

Thomas A. Trumbour

Thomas A. Trumbour, 75, general manager of Metals and Plastics Publications, Inc., Westwood, N. J., a charter and honorary member of the American Electroplaters' Society, died September 2 in Paterson, N. J.

Thomas A. Trumbour

Mr. Trumbour joined Metals and Plastics Publications 55 years ago and remained with the firm for the rest of his life, serving as its general manager for the last 20 years. He was a founder and treasurer of the Metal Finishing Suppliers' Association, Inc.

O. S. McGuffey

O. S. McGuffey, former chief engineer at Tranter Manufacturing, Inc., Lansing, Mich., died September 11 at Lansing, Mich. He was 62 years old and had retired on December 31, 1957.

MEETINGS of INTEREST to FINISHERS

Oct. 5-8. 36th Annual Meeting, Federation of Paint & Varnish Production Clubs, Cleveland Public Auditorium, Cleveland, Ohio.

Oct. 5-8. 23rd Annual Paint Industries' Show, Cleveland Public Auditorium, Cleveland, Ohio.

Oct. 15-17. Third Annual North Central Region Conference, National Association of Corrosion Engineers, Sheraton-Gibson Hotel, Cincinnati, Ohio.

Oct. 27-31. 40th National Metal Exposition and Congress, Cleveland Public Auditorium, Cleveland, Ohio.

Oct. 31-Nov. 1. Philadelphia Branch, A. E. S., Annual Educational Session and Banquet, Hotel Sheraton, Philadelphia, Pa.

Nov. 5-6. Fall Conference, Society of Vacuum Coaters, Hotel Statler Hilton, Detroit, Mich.

Nov. 6-7. 39th Annual Meeting, Galvanizers Committee, American Zinc Institute, Pick-Roosevelt Hotel, Pittsburgh, Pa.

Dec. 4-5. Annual Educational Session and Banquet, Detroit Branch A. E. S., Hotel Statler, Detroit, Mich.

Jan. 31, 1959. Annual Educational Session and Dinner Dance, Cleveland Branch, A. E. S., Cleveland, Ohio.

June 15-19, 1959. Golden Jubilee Convention and International Exposition, Fifth International Conference on Electrodeposition, Detroit, Mich.

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PRODUCT LITERATURE

40. Sprayable Coatings
Bulletin tells how metals and painted surfaces can be protected during assembly and transit by a plastic coating that is sprayed on, stripped off when product is ready for use. Spraylat Corp., One Park Ave., New York 1, N. Y.

41. Rack Trucks
Information on rack trucks designed for batch-type baking operations. Wilder Mfg. Co., Inc., Dept. H, Mechanic St. & Erie RR., Port Jervis, N. Y.

42. Baking and Drying Ovens
Bulletin 157 describes line of batch and conveyor-type baking ovens for heating up to 1,000 deg. F. Young Brothers Co., 1830 Columbus Rd., Cleveland 13, Ohio.

43. Etch Primer
Data on Gripalloy, an etch primer available in black and colors. Used as primer or finish coat. Tenax, Newark 5, N. J.

44. Automatic Metal Finishing
Information on "Little Steve," a compact automatic processing machine that can be adapted to anodizing, dip-painting, flow coating, bright dipping, ultrasonic cleaning, electropolishing, tin immersion processing, other finishing processes. Frederic B. Stevens, Inc., Detroit 16, Michigan.

45. High-Temperature Masking
Information on Shurtape, especially designed for use in masking articles that are subject to extreme heat in baking. Shuford Mills, Inc., Hickory, N. C.

46. Acrylic Coatings
Performance and application information on acrylic-based coatings. The Varnish Products Co., 5204 Harvard Ave., Cleveland, Ohio.

47. Die-Casting Alloys
Di-Metal die-casting alloys, their properties and industrial applications are described in a 32-page booklet that includes sections on metallurgy of these alloys, their applications and techniques for handling during melting and casting. Federated Metals Div., American Smelting & Refining Co., 120 Broadway, New York 5, N. Y.

48. Spraying Wash Primer
Information on Stantite Spraying Wash Primer, a two-package rust-inhibiting primer that is said to improve the quality of any topcoat, air-dry or bake. Stanley Chemical Co., Dept. J, 1338 Berlin St., East Berlin, Conn.

49. Cob Grits for Blasting, Tumbling
Information on corn cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc., P. O. Box 185, Tipton, Indiana.

50. Glove Selection Guide
Handy pocket folder serves as a guide to selecting the right glove for a particular application. Pioneer Rubber Co., 285 Tiffin Rd., Willard, Ohio.

51. Stripping Copper
Complete explanation of the Liquid Sulphur process for removing electroplated copper. Includes list of chemical and physical properties for this material, process details, control procedures, equipment needed. Sulphur Products Co., Inc., 621 W. Pittsburgh St., Greensburg, Pennsylvania.

52. Multiple-Process-Cycle Plating Machine
Information on the Select-O-Matic automatic plating machine, which allows the operator to select any one of several plating cycles when he loads the machine, merely by turning a dial. Lasalco, Inc., 2820 LaSalle St., St. Louis 4, Mo.

53. Technical Data on Hot Spray
Revised edition of the booklet "Why Hot Spray?" includes technical information on the advantages and possibilities of hot spray painting process. Spee-Flo Co., 6614 Harrisburg Blvd., Houston 11, Texas.

54. Ovens
Information on Lanly finishing ovens. The Lanly Co., 2800 Euclid Ave., Cleveland 15, Ohio.

55. Finishing Systems
Information on systems for application of organic finishing materials on metal products. Ransohoff, Inc., 610 N. Fifth St., Hamilton, Ohio.

56. Clear Protection
Information on 2105 Clear Lacquer for the protection of brass, silver, bronze and copper. G. J. Nikolas & Co., Inc., 2880 Washington Blvd., Bellwood, Ill.

57. Immersion Heater
Descriptive literature on Therm-X immersion heaters, available in quartz and stainless steel with built-in temperature control. N. J. Thermex Co., Inc., 537 Bergen St., Harrison, N. J.

58. Isophthalic-Based Paints
Information on the improved abrasion resistance, weather resistance, film flexibility and gloss retention of paints made with isophthalic-based resins. Oronite Chemical Co., 200 Bush St., San Francisco, Calif.

59. Conveyorized Finishing Systems
Information on finishing systems for painting articles that are turned out in large quantities. Industrial Ovens, Inc., 13811 Triskett Rd., Cleveland 11, Ohio.

60. Respirator-Mask for Spray Painting
Information on Dupor Chemical Cartridge Respirator No. 10, a mask that fits over the nose and mouth to protect from paint and lacquer fumes, chemical fumes, smoke, and so on. H. S. Cover, Dept. 1007, South Bend 14, Indiana.

61. Automatic Polishing
Information on automatic polishing and buffing machines. Packer Machine Co., Meriden, Conn.

62. Electrostatic Spray Painting
Information on the Ransburg No. 2 electrostatic spray painting process. Ransburg Electro-Coating Corp., P. O. Box 7822, Indianapolis 23, Ind.

63. Rectifiers
Data sheet describes two types of rectifiers for use in electroplating: the Lektron magnesium-copper sulfide for service in hot, dirty areas; and the Lektron selenium for cool zones. Electronic Rectifiers, Inc., 2102 Spann Ave., Indianapolis 3, Indiana.

64. Abrasive Belt Sander
Data sheet describes Speedbelt 12 high-speed abrasive belt polishing machine. Timesaver Sanders, P. O. Box 7446, Robbinsdale Station, Minneapolis 22, Minn.

65. Touch-Up Paint
Data on the company's line of self-spray lacquers, enamels and wrinkle finishes. Plasti-Kote, Inc., 9801 Harvard Ave., Dept. K, Cleveland 5, Ohio.

66. Hammer Finish
Information on Tousey Hammercote, a hammer-type finish said to produce uniform patterns, hard, mar-proof films. Tousey Varnish Co., 520 W. 25th St., Chicago 16, Ill.

67. Clean Plating Solutions
Catalog describes Alsop filtration units for removing impurities from plating solutions. Alsop Engineering Corp., 1310 Keen St., Milldale, Conn.

68. Brass Plating Solution
Technical bulletin on True Brite brass solution, which is available in a variety of colors. True Brite Chemical Products Co., Box 31, Oakville, Conn.

69. Vapor Degreaser
Folder describes the JMP waterless vapor degreaser, which controls vapor by refrigeration. Fully automatic controls, no water, efficient control of vapor. R. W. Legler Plating Works, 1602 Parade St., Erie, Pa.

70. Single-Bake Primer-Finish Coat
Details on a primer-finish coat system that can be baked in one pass through the oven, thus lessening requirements for oven capacity. Egyptian Lacquer Mfg. Co., Box 444, Newark 1, N. J.

71. Red Primer
Information on the advantageous features of Napry Red Primer. Lowe Brothers Co., Dayton 2, Ohio.

72. Ovens for Industry
"Ovens for Industry" catalog describes and illustrates many different types and sizes of industrial ovens. Kirk & Blum Mfg. Co., 3116 Forrer St., Cincinnati 9, Ohio.

73. Black Oxide
Bulletin H-16 tells how to produce a rust-resistant black finish that is also an excellent base for topcoats of lacquer or enamel. Park Chemical Co., 8078 Military Ave., Detroit 4, Mich.

74. Temperature Controls
Sarco Case History No. 174 describes and illustrates typical applications where Sarco Electric Indicating Temperature Controls have improved liquid processing operations. Sarco Co., Inc., 635 Madison Ave., New York 22, N. Y.

75. Electric Immersion Heaters
Catalog 50 gives complete details on Chromalox electric immersion heaters designed for a wide variety of applications. Edwin L. Wiegand Co., 7522 Thomas Blvd., Pittsburgh 8, Pa.

76. Plating Solution Filter
Information on the "Plater's Pal," a vacuum-type filter designed for use as an individual filter for multiple tanks in large shops. Sparkler Manufacturing Co., Mundelein, Ill.

77. Buffs
Information on Kul-Kut air-cooled bias-type buffs, which are said to be particularly adaptable to semi- and full automatic polishing and buffing operations. Chas. F. L'Hommedieu & Sons Co., 4521 W. Ogden Ave., Chicago 23, Ill.

78. Automated Degreaser
Folder describes automated degreaser that combines solvent degreasing with automatic work handling. Describes cycle, advantageous features, includes photos. Detrex Chemical Industries, Inc., Box 501, Detroit 32, Mich.

79. Plating Barrels
Complete details on Crown plating barrels and Crown Lucite cylinders. Data on models for single-stage installations and multiple-stage processing lines. Crown Rheostat and Supply Co., 3465 N. Kimball Ave., Chicago 18, Ill.

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80. Immersion Heaters
Bulletin describes and gives specifications for acid- and alkali-resistant quartz immersion heaters. Glo-Quartz Electric Heater Co., Inc., Willoughby, Ohio.

81. Cyanide Copper Plating Process
Data on Ro-Bright, a bright cyanide copper plating process said to produce deposits with excellent brightness in a minimum time. R. O. Hull & Co., Inc., 1304 Parsons Ct., Rocky River 16, Ohio.

82. Barrel Nickel Brightener
Technical information on Jelco barrel nickel brightener. Jelco Finishing Equipment Corp., 153 E. 26th St., New York 10, New York.

83. Pressure Curtain Coater
Data File SIF-7 contains complete data on the Steinemann-Koch pressure curtain coater, which applies a uniform coating of lacquer or synthetic material on flat or moderately curved work. Patented Swiss process in which a vertical film is poured onto the work from adjustable orifices as the work passes through the machine. George Koch Sons, Inc., Evansville 4, Indiana.

84. Stripping Additive
Special bulletin on Magnus Activall, an additive said to increase efficiency and effectiveness of caustic strippers. Magnus Chemical Co., Inc., 208 South Ave., Garwood, N. J.

85. Fusion-Bond Finishes
Bulletin gives complete data on Corvel finishing resins, tells how they can be applied by the Whirlclad process, a method of coating with plastics by dipping heated metal objects into a fluidized bed of suspended coating powders. National Polymer Products, Inc., Reading, Pa.

86. Aluminum Etchant
Technical data sheet on Cowles AK tells how this formulation works on all aluminum alloys, prevents build-up of scale by means of a special sequestering agent. Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.

87. Hot-Dip Paint Process
Information on the David-Ludwig painting process, in which part to be painted is preheated and dipped into paint formulated with chlorinated solvent. Paint is heated to 160 deg. F. As part leaves dip tank, paint dries immediately by fast solvent evaporation. David Ludwig Co., 14290 Goddard Ave., Detroit 12, Mich.

88. Water-White Lacquer
Information on Daconite 5600 clear lacquer, a ready-to-spray lacquer that is said to have excellent paleness and color retention. James B. Day & Co., 1872 Clybourn Ave., Chicago 14, Ill.

89. Panel Heaters
Data Bulletin 258 describes the Thermo-Panel Coil, a heat exchanger that is formed by welding two embossed sheets together to form flow channels. Dean Thermo-Panel Coil Div., Dean Products, Inc., 622 Franklin Ave., Brooklyn 38, New York.

90. Ovens
Bulletin C describes various standard ovens for production heating and drying applications requiring temperatures up to 750 deg. F. Despatch Oven Co., Dept. 53A, 619 S. E. Eighth St., Minneapolis 14, Minn.

91. Ready-Mixed Gold
Information on Sea-Lac ready-mixed gold finishes for application by spray or dip. Duralac Chemical Corp., 84 Lister Ave., Newark, N. J.

92. Immersion Gold Plating Solution
Information on Atomex immersion gold plating solution, which will deposit a thin coating of gold on a wide variety of parts by simple immersion. Engelhard Industries, Inc., Chemical Div., 113 Astor St., Newark, N. J.

93. Barrel Finishing Equipment, Supplies
A 48-page catalog of barrel finishing equipment and supplies describes the Supersheen method of barrel finishing, its advantages, typical applications. Includes useful information, specific data on time cycles, compounds, speed of rotation, media, water level, load height. Almco, Queen Products, Inc., 88 Marshall St., Albert Lea, Minn.

94. Belt Conveying Systems
Bulletin describes and illustrates A-F Engineered Belt Conveying Systems. Includes photos of installations showing typical applications. Alvey-Ferguson Co., 656 Disney St., Cincinnati 9, Ohio.

95. Guide to Chemical Treatments
An eight-page brochure describes various chemical conversion coatings for steel, aluminum, galvanized iron, zinc and cadmium plated surfaces; for corrosion resistance, paint bonding, drawing and forming, protection of friction surfaces. Includes list of government specifications. Amchem Products, Inc., Ambler 14, Pa.

96. Tack Cloth
Literature on treated cloths that pick up dust and lint prior to paint finishing. Bond Chemical Products Co., 2639 N. Clybourn Ave., Chicago 14, Ill.

97. Q-Panels
Data sheet on standard test panels for use in the laboratory in checking finishes. Gardner Laboratory, Inc., P. O. Box 5728, Bethesda 14, Md.

98. Self-Sticking Felt
Information on Quik-Felt, a self-sticking wool felt that has numerous uses, including prevention of stratches on highly polished surfaces. W. H. Brady Co., 746 W. Glendale Ave., Milwaukee 9, Wisconsin.

99. Flock Application
Brochure contains instructions on the application of flock with new materials and techniques. Cellusuede Products, Inc., 512 N. Madison St., Rockford, Ill.

100. Overhead Conveyors
Descriptive literature on Chainveyor overhead conveyors lists advantages, tells about "power and free" systems. Chainveyor Corp., 5618 E. Washington Blvd., Los Angeles 22, Calif.

101. Contact Wheel
Data sheet describes advantages of the R-57 rubber contact wheel. Chicago Rubber Co., Inc., 651 Market St., Waukegan, Illinois.

102. Buffs
Data sheet describes Buff Type No. 20-DOTA, a heavy-duty buff made of sisal twine, used for finishing steel, brass, aluminum. Geo. R. Churchill Co., Inc., Dept. PF-88, Hingham, Mass.

103. Cleaning and Finishing Machinery
A 24-page catalog of metal cleaning and finishing machinery includes sections on principles of metal cleaning, descriptions of various types of cleaning equipment, phosphatizing machines, spray booths, drying ovens. Cincinnati Cleaning & Finishing Mchry. Co., 2008 Hageman St., Cincinnati 41, Ohio.

104. Titanium Anodizing Cylinder
Data sheet describes and illustrates an all-titanium anodizing cylinder that is useful in bulk processing of bolts, rivets, screws. Requires no stripping, resists acids. Detroit Industrial Process Co., 9301 French Rd., Detroit 13, Mich.

105. Basic Principles of Spray Painting Equipment
Booklet entitled "The ABC's of Spray Equipment" answers common questions pertaining to spray guns, cups, tanks, air filters, air compressors, respirators, spray booths, other spray painting equipment. Includes suggestions for operation and maintenance. The DeVilbiss Co., Toledo 1, Ohio.

106. Quartz Tube Heaters
Bulletin 571 describes advantages of quartz Infratube heating elements in baking, preheating, drying, and so on. Includes table of specifications for complete line. Quartz Products Corp., P. O. Box 628, 688 Somerset St., Plainfield, New Jersey.

107. Sintered Tumbling Shapes
Bulletin describes a new type of sintered metal tumbling media that is produced by a special sintering process. Technical data included is based on field tests of the media. Dixon Sintaloy, Inc., 537 Hope St., Stamford, Conn.

108. Cold Cleaning Solvents
Literature on Chlorothene solvent, formulated to be used in cold cleaning operations. Chemicals Sales Dept. 763G, The Dow Chemical Co., Midland, Mich.

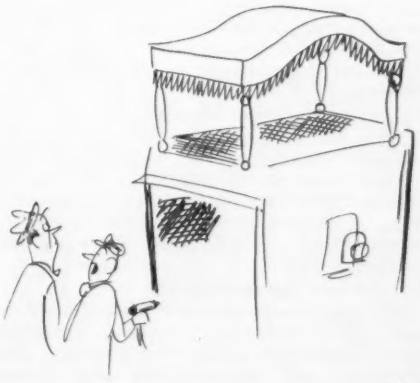
109. Copper Plating Chemicals
Literature describes "Coppralyte" Copper Plating Chemicals. E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Del.

110. Silk Screening Ovens
Eight-page bulletin describes ovens designed to be used in baking and drying silk screen work, signs, etc. Fostoria Pressed Steel Corp., Fostoria, Ohio.

111. Centrifugal Painting Machinery
Bulletin tells how the Norris Gyromat operates, what it will do, describes its advantages. The Gyromat Corp., P. O. Box 600, Fairfield, Conn.

112. Abrasive Belt Polishing Machines
Bulletin 337-T describes several models of abrasive belt grinders, buffers, polishers, tells what each machine will do, its advantages, general specifications. Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich.

PRODUCTS FINISHING Magazine



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113. Nickel Plating Salts
Folder lists physical properties of Harshaw nickel sulfate (single nickel salts). The Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

114. Electrostatic Spray Equipment
Catalog illustrates numerous electrostatic spray systems developed to help manufacturers eliminate bottlenecks in their finishing departments. Ionic Electrostatic Corp., 111 Monroe St., Garfield, N. J.

115. Tumbling Machines
Literature describes and illustrates various tumbling machines. H. W. Kramer Co., 120-30 Jamaica Ave., Richmond Hill 18, New York.

116. Finishing Systems
Catalog No. A-658 discusses the advantages of complete, conveyorized finishing systems. Includes data on cleaning and pickling equipment, ovens, spray booths, air-supply systems, complete systems for painting, porcelain enameling, flow and dip coaters. The R. C. Mahon Co., Detroit 34, Mich.

117. Masking Aids
"Time-Saving Masking Aids for Better Product Finishing" is the title of an illustrated brochure that describes masking discs, plugs, caps, corks, tape. Includes information on tape dispensers. By-Buk Co., 4314 W. Pico Blvd., Los Angeles 19, Calif.

118. Alkaline Tin Plating
Manual gives complete operating instructions for tin plating from the high-speed potassium stannate bath as well as recommended practice for plating from the sodium stannate bath. Includes basic data on alkaline tin plating, complete details on solutions and materials, operating conditions, anodes, analytical methods. Metal & Thermit Corp., Rahway, N. J.

119. High-Vacuum Valves
Bulletin V2 includes general information on high-vacuum valves, types and uses of high-vacuum valves, data sheets on various types of valves. NRC Equipment Corp., A Subsidiary of the National Research Corp., Dept. 23X, Newton 61, Massachusetts.

120. Airless Spray Painting
A six-page brochure tells about the airless spray painting method, answers typical questions about the process. Applications and advantages are listed. Nordson Corp., Amherst, Ohio.

121. Rhodium Plating Solutions
Literature describes the company's line of rhodium plating solutions. Sigmund Cohn Mfg. Co., Mount Vernon, N. Y.

122. Phosphatizing Compound
Folder describes Oakite Cryscoat No. 89, a conversion coating for use in spray washing machines or tanks. This material converts the surface of steel parts into a hard, dense phosphate coating that weighs from 60 to 90 milligrams per square foot. Less paint is required than with heavier coatings, the manufacturer states, and paint does not chip as easily when this material is used as the paint base. Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

123. Oven Guide
Catalog No. 122 serves as a guide for selecting the right oven to bake, dry, cure, paint, varnish, lacquer and enamel parts and assemblies. W. S. Rockwell Co., 2028 Eliot St., Fairfield, Conn.

124. Barrel Finishing Catalog
A 24-page catalog on barrel finishing sets forth a clear explanation of mechanical finishing processes, tells how barrel finishing can be used in grinding, deburring, descaling, polishing and coloring of metal parts. Includes data on Roto-Finish barrel finishing machines, chip bins, separators, dryers, screens and so on. Roto-Finish Co., 3704 Milham Rd., Kalamazoo, Mich.

125. Bright Silver Plating Process Instructions
Seven-page brochure contains technical instructions for the Sel-Rex Silvrex Bright Silver Process, includes data on bath make-up, purification of solution, solution maintenance, operating conditions. Sel-Rex Corp., Nutley 10, N. J.

126. Filter Pump Units
Bulletin 103 contains complete data on Sethco filter pumps for removing solids from acid and alkaline solutions. Sethco Mfg. Co., 2284 Babylon Turnpike, Merrick, L. I., N. Y.

127. Save Dirty Solvents
Data on the company's service of reclaiming dirty solvents. Solvents Recovery Service, Inc., 1025 Broad St., Newark 2, New Jersey.

128. Spray Nozzle Catalog
Catalog No. 24 is a 48-page booklet containing complete data on various spray nozzles and accessories. Nozzles are listed in tabular form and complete information is given on pipe sizes, external dimensions, orifice diameters, capacities and spray angles. Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

129. Printed Circuits
Information on silk screens and ink for making printed circuits. Naz-Dar Co., 461 Milwaukee Ave., Chicago 10, Ill.

130. Vacuum Metalizing Coils
Specification booklet entitled "Tungsten Coils for Vacuum Metalizing" contains information on standard vacuum metalizing coils, lists each coil according to dimensions and type of material. Sylvania Electric Products, Inc., Chemical and Metallurgical Div., Towanda, Pa.

131. Soluble Precious Metals for Electroplating
Folder lists gold, rhodium, palladium, platinum, silver, and alloy precious metal plating solutions available from stock. Technic, Inc., Providence 1, R. I.

132. Barrel Bright Zinc Plating
Bulletin No. Z-1-ZB describes Udylite Bright Zinc Process ZB, tells about what basis metals may be plated, cleaning procedures, equipment requirements, sludge, rinsing, drying, preparation of solution, operating conditions, additions. Udylite Corp., Detroit 11, Michigan.

133. Two-Three Stage Degreasers
Bulletin No. 655 describes two- and three-stage solvent degreasers, how they work, where they are applicable. Ramco Equipment Corp., 811 Edgewater Rd., New York 59, N. Y.

134. Non-Destructive Coating Thickness Tester
Dermitron Bulletin DF tells about what the Demitron is (an instrument for nondestructive coating thickness determination of metals on metals, metals on nonconductors, non conductors on metals), desirable features of the instrument, specifications, accessories. Unit Process Assemblies, Inc., 61 E. Fourth St., New York 3, N. Y.

135. Electroplating Processes
Bulletin EP-101 lists cadmium, copper, nickel, silver and zinc plating processes, includes specific data on each process, including solution preparation, type of deposit produced, type of solution, operating conditions, equipment required, and applications. Hanson-Van Winkle-Munning Co., Matawan, N. J.

136. Solution-Level Control
Details on a device that will automatically control the level of solution in a tank. Elkhart Controls Co., Route No. 2, Elkhart, Indiana.

137. Metal Washing Equipment
Bulletin 521 describes various types of washing machines. Circo Equipment Co., 122 Central Ave., Clark, N. J.

138. Plating Course
Information on a correspondence course in electroplating. Joseph B. Kushner Electroplating School, 2509 Washington Ave., Evansville 14, Indiana.

139. Ultrasonic Cleaning Equipment
Data sheet describes the 1500 Series Sonblaster ultrasonic cleaning machine. Data Sheet No. 1500. Fourteen stock ultrasonic systems are described. Narda Ultrasonics Corp., 160 Herricks Rd., Mineola, L. I., N. Y.

140. Clear Semi-Gloss Lacquer
Information on Agateen No. 2B semigloss lacquer. Agate Lacquer Mfg. Co., Inc., 11-13 43rd Rd., Long Island City, New York.

141. Plating Brighteners
Information on Isobrite plating brighteners for cadmium, copper, zinc, white brass. Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Maryland.

142. Drum Upender
Information on a handy tool for upending heavy drums easily. Morse Mfg. Co., Inc., 762 W. Manlius St., E. Syracuse, New York.

143. Degreasing Solvent
Information on Blacosolv degreasing solvent. Dept. 104-D, G. S. Blakeslee & Co., 1844 S. Laramie Ave., Chicago 50, Illinois.

144. Rectifiers
Ten-page booklet contains complete data and specifications for Syntron a.c.-d.c. power units. Syntron Co., Box 220, Homer City, Pa.

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145. Thickness Tester
Description of the Kocour Model 955 electronic plating thickness tester. Kocour Co., 4814 S. St. Louis Ave., Chicago 32, Illinois.

146. Blast Finishing Machines
Bulletin MB-100 describes and illustrates Micro Blast liquid abrasive machines for producing smooth surfaces on metal parts. Includes information on new oscillating gun design for belt-type machines, which is said to prevent "striped" finishes. Lewis Welding and Engineering Corp., 100 Northfield Rd., Bedford, Ohio.

147. Corrosion-Proof Lining
Technical bulletin on Coroline, a thermosetting lining that can be troweled on to protect chemical storage tanks, pickling and plating tanks, processing tanks, pits and foundations. The Cellcote Co., Inc., 4848 Ridge Rd., Cleveland 9, Ohio.

148. Abrasive Belt Polishing Machines
Information on Hill Acme abrasive belt polishing machines for polishing flat surfaces of ferrous and non-ferrous metals. The Hill Acme Co., 1207 W. 65th St., Cleveland 2, Ohio.

149. Materials Handling Equipment
Form 35-12 describes and illustrates a complete line of equipment and accessories for pumping semi solids and fluids from storage or container to point of application. Includes data on pumps, agitators, pressure regulators, hoses, air consumption rates. Alemite Div., Stewart-Warner Corp., Dept. AF-108, 1850 Diversey Parkway, Chicago 14, Ill.

150. Clear Lacquers
Data on clear lacquers especially formulated to be used in protecting highly polished metals and those that tarnish easily. Randolph Products Co., Carlstadt, New Jersey.

151. Water Wash Spray Booth Compound
Information on Diff. LX Klarifiant, a spray booth compound that is said to prevent clogged nozzles, booth rusting, foam, and curtain "build-up." DuBois Co., Inc., 1120 W. Front St., Cincinnati 3, Ohio.

152. Setting Up Polishing Wheels and Belts
Form 1340, a 45-page booklet on methods of setting up polishing wheels and belts for metal finishing operations, includes detailed instructions on abrasive grains, glue and its preparation, types of polishing wheels and their fields of use, correct drying of polishing wheels, handling and storage, other related subjects. Norton Co., Worcester 6, Mass.

153. Wood Tank Handbook
Reference source on wood tanks describes uses of wood tanks, capacities, physical and chemical properties of wood and their relation to expected service of wood tanks, and so on. National Wood Tank Institute, 332 S. Michigan Ave., Chicago 4, Illinois.

154. Non-Destructive Film Testing
Folder describes the Elcometer, a non-destructive film-thickness gage. Tells what the pocket-sized instrument will do, how it works, describes uses. Ferro Corporation, 4150 E. 56th St., Cleveland 5, Ohio.

155. Used Equipment
Information on used buffing and polishing machines. J. Holland & Sons, Inc., 485 Keap St., Brooklyn 11, N. Y.

156. Air Sanders
Data on portable air-operated sanding machines. Sundstrand Magnetic-Pneumatic Products, Div. of Sundstrand Machine Tool Co., 1020 Ninth St., Rockford, Ill.

157. Vapor Degreasing
"Vapor Degreasing Using Diamond Perchlorethylene" is the title of a 12-page technical bulletin that presents brief data covering the advantages of vapor degreasing in production cleaning and metal surface preparation. Discusses essentials of vapor degreasing equipment, methods of scheduling vapor degreaser cleanouts and solvent distillation, suggested operating procedures. Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland 14, Ohio.

158. Protect Polished Parts
Folder shows typical applications of Neotex neoprene rubber mesh matting, a protective cover or liner for baskets, tables, benches and so on — wherever delicate or easily marred parts are being processed. Research Products Corp., Dept. 76, Madison 10, Wisconsin.

159. Rubberized Abrasives
An eight-page catalog of rubberized abrasives for deburring, smoothing and polishing explains the many uses of rubberized abrasive wheels, points, blocks, sticks and cones. It contains operating instructions, application information, tables, illustrations, and the latest technical data. Cratex Manufacturing Co., 1600 Rollins Rd., Burlingame, Calif.

160. Industrial Dust Control
A 36-page catalog (Bulletin 104) describes complete line of Sly Dust Filters and gives detailed information about dust control systems and how to engineer them. W. W. Sly Manufacturing Co., 4784 Train Ave., Cleveland 1, Ohio.

448. Filters for Electroplating
Bulletin GEO-508 is entitled "A New Concept of Electroplating Filtration." It explains how Fulflo filters with Honeycomb filter tubes provide tank turnover up to three times per hour. Includes description of new stainless steel filter. Commercial Filters Corp., 2 Main St., Melrose 76, Mass.

449. Organic Chemicals
Catalog describes Shell line of solvents, resins, intermediates. Shell Chemical Corp., Chemical Sales Div., New York, New York.

450. Barrel Finishing Machinery
A four-page folder describes and illustrates standard and special barrel finishing machines, barrels, multiple-barrel machines. The Baird Machine Co., Stratford, Conn.

451. Impervious Graphite Heat Transfer Equipment
Bulletin entitled "Nocordal Impervious Graphite Heat Transfer Equipment for Corrosive Chemicals" describes heat exchangers, immersion heaters, and agitators constructed of graphite. Includes data on flow rates and effective heat transfer areas. Heil Process Equipment Corp., 12901 Elmwood Ave., Cleveland 11, Ohio.

452. Coated Abrasive Wheel
Information on grits and sizes of Grind-O-Flex flexible coated abrasive wheels. These wheels are made of hundreds of sheets of coated abrasive paper, produce uniform finish during entire wheel life. Merit Products, Inc., 3691 Lenawee Ave., Los Angeles 16, Calif.

453. Corrosion-Resistant Coatings
Booklet entitled "What Every Maintenance Man Should Know About Urethane Coatings" describes characteristics of these plastic coatings: resistance to corrosive chemicals and fumes; resistance to abrasion, heat, sunlight, weather. Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

454. Barrel Finishing Compounds
Data sheet describes a variety of barrel finishing compounds, tells what each compound will do, how to use. Abrado Finish Corp., Dept. PF-9, 1750 Elizabeth, N.W., Grand Rapids 4, Mich.

455. Wet Blast Finishing
Finishing by the wet blast method is the subject of Bulletin 100. Illustrates and describes applications of Wheelabrator Liquimatte Model 43 wet blast equipment. Techline Div., Wheelabrator Corp., 1155 Avenue V, Vicksburg, Mich.

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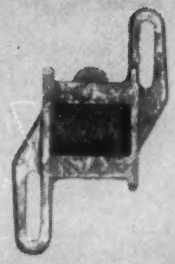

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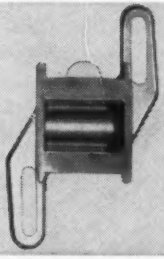

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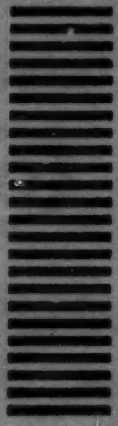

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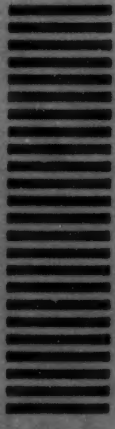

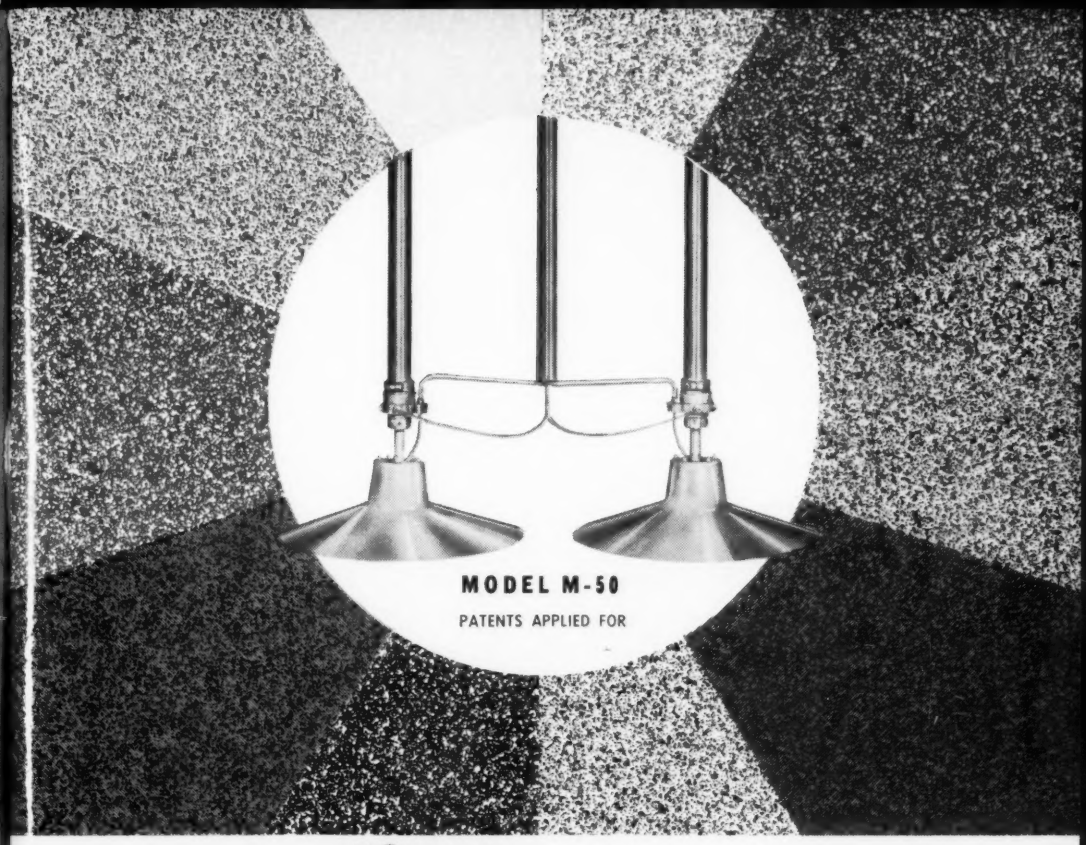

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